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The paper. The paper is carefully formatted according to the template of the journal (see bellow). Special attention is paid to the exact application of the Harvard referencing convention to both continuous citations and list of references. If an electronic source has the DOI number assigned, also it will be provided in the list of references. Manuscripts are submitted via the editorial system in the DOC.

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EDITORIAL

We are pleased to present the third issues of the year 2019 (vol. 12, no. 3). We are glad that ERIES Journal keeps attracting submission from different regions all around the world. The current issue includes articles from the Czech Republic, Nigeria and the United States. The common topic of all three articles is students' motivation to learn. Nowadays, in the globalized world with numerous sources of information, it is crucial to understand well the problematic situation. To do so, students must show their expertise and use correctly their gained knowledge. Some of the key competences in this process are creative decision-making, critical thinking and problem-solving. Higher education institution must adopt or better redesign their current programs to have relevant learning curriculum to stimulate learning of such competencies. First, curricular creators must carefully identify variables that affect students' motivation to learn. Second, higher education institutions must identify factors that enable the creation of knowledge sharing culture. Finally, study programs must involve novel methods to enable active learning to strengthen the required key competencies. Students should learn from real case studies, be able to search for relevant information and, importantly, be able to know how to utilize this information. This mixture can lead to greater students' motivation, which would encourage them to higher participation during courses, as well as to higher education quality.

In the first article "Encourage them to learn: Case Study of Fictitious Product and Virtual Market in Marketing Communications Degree Course", Václav Švec and Richard Selby from Czech University of Life Sciences Prague present results of a new design for the Marketing Communications course. In this new course, students are engaged in designing a real package for a fictitious product, which they try to establish in a virtual market. For this purpose, students use a wide range of promotional tools to gain the biggest possible market share. The authors demonstrate the new course design on a sample of 240 students from Faculty of Economics and Management. The innovative course design shows to be a key factor to stimulate students' active learning, rather than common reading and memorisation of course materials. What is more, the results indicate statistically better learning output in the new designed course compare to the traditional course structure.

The second article "Affective variables and motivation as predictors of proficiency in English as a foreign language" from Michaela Cocca and Armando Cocca from Texas A&M University – San Antonio analyses psychosocial processes that influence English proficiency in EFL settings. The authors investigated the relation between affective variables, motivation and proficiency and assess which attitudinal/motivational domains can better predict English proficiency. Mini AMTB and English Proficiency test were employed to a sample of 354 university students from second to sixth semester at the Faculty of Sports Organization of the Autonomous University of Nuevo Leon in Mexico. Results indicate that students' achievement was significantly associated with their motivational intensity and their attitude towards learning English. What is more, students' perception of the quality of the English course was found to be positive predictors of students' proficiency.

The last article "Assessment of knowledge sharing determinants in the Nigeria Universities using Analytic Network Process" from a collective of authors Olamilekan Gbenga Oyenuga, Sulaimon Olanrewaju Adebiyi, Damilola Omolade Mustapha and Bukola Oluwadamilola Abimbola from University of Lagos, Nigeria assess factors affecting knowledge sharing among university academics in Nigeria. The authors applied the Analytical Network Process to examine the extent to which individual barriers and motivational factors drive academia willingness to knowledge sharing. For this purpose, the analysis is based on a sample of 176 academics, such as professors, associate professors, senior lecturers and assistants. Results indicate that the institutional norm was identified as an effective factor to drive willingness to knowledge sharing. Further, cultural differences among individuals hinder knowledge sharing. Therefore, building stronger teams among academics stimulates knowledge sharing. Thus, it is recommended to provide financial rewards in order to foster knowledge sharing among academics.

We would like to thank all authors who have submitted their manuscripts to ERIES Journal and special thanks to all reviewers for their effort in revising the manuscripts. We hope that all our readers will find this third issue of the year 2019 interesting. We also hope that the published articles will positively contribute to the field of efficiency and responsibility in education.

Sincerely

Martin Flégl
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CONTENT

ENCOURAGE THEM TO LEARN: CASE STUDY OF FICTITIOUS PRODUCT AND VIRTUAL MARKET IN MARKETING COMMUNICATIONS DEGREE COURSE

Václav Švec[1]✉
Richard Selby[1]

[1] Faculty of Economics and Management, Czech University of Life Sciences Prague, Czech Republic

✉ svec@pef.czu.cz

ABSTRACT

At the Faculty of Economics and Management at the Czech University of Life Sciences Prague (CULS Prague) a wide range of marketing courses are taught, covering many aspects of marketing theory. The curriculum of the majority of marketing courses consists of case studies and project work in teams. The students in their MSc. studies have five marketing subjects in total, and work with different teachers, though the same teaching approach and design (project teaching) is used. In this article, we present the results of a new design for the Marketing Communications course. In this case, students are engaged in designing a real package for a fictitious product, and to enter a virtual market using a wide range of promotional tools. The students then debrief the entire experience as consumers in that virtual market. The course uses a mix of traditional and contemporary teaching techniques in the field of marketing communications. It can be used in traditional or blended learning or adapted for online courses. The innovative course design has been shown to be a key factor to stimulate the students to learn, rather than simply study and repeat their lectures. The learning efficiency compares favourably with the original course design.

KEYWORDS

Fictitious product, marketing curriculum, Moodle, promotion, virtual market

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Highlights

- *New course design using theoretical knowledge and practical skills.*
- *Qualitative students´ evaluation of the proposed course design.*
- *Innovative approach in course design does effect the study outcomes.*
- *Course designed fully complies with Kolb´s learning cycle.*

INTRODUCTION

Education today increasingly differs from that at the end of 20th century. We are living in a time of growing implementation of modern information and communication technologies (ICT) into the education of children and adults of all age groups (Hruby, 2008). This trend is called the "Read-Write Web", which is a social software, where everyone publishes resources on the web using simple and open, personal and collaborative publishing tools (O'Reilly, 2005). Cachia (2008) defined "Social software" as those applications that enable a wide range of interaction, collaboration and sharing between users. These include applications for blogging, clipping, instant messaging, forums, web directories, social bookmarking, social networking, multimedia sharing and cataloguing, social cataloguing, social citations, and social gaming, virtual words, wikis, eLearning, etc. Social software applications are based on digital media and digital technologies. As "Digital media" we include any media that exists in a computer-readable format, and can reside on a local device (CD, DVD, Blue Ray, or hard drive), or remote location (website) (Caputo, Wolf and Borho, 2006). This paper deals with curriculum development, therefore, we will only be considering the role of digital media in education here.

According to Watson and Pecchioni (2011), digital media in education are either demonised or viewed as the panacea for curriculum ills. Hedberg (2011) sees the possibility of using

digital media in education as a unique challenge, especially in producing positive learning outcomes, which, in terms of efficiency and usefulness, also confirms the findings of Aberson et al. (2002) and Law, Lee and Yu (2010). On the other hand, Dillenbourg (2000) understands that challenge as reaching a deep understanding of the relationship between technological choices and teaching processes. A similar view of this problem is presented by Mayer (2005), who states that the question "What can we do with multimedia?" is adopting a technology-centred approach that is doomed to fail. This is also confirmed by Young (1995), Huddleston and Unwin (1997), and Joshi et al. (2003), who all say that the teacher (or technology) cannot be in the central position of teaching, but it must be the student. The teacher nowadays has evolved into a "manager of education" or "facilitator", and technology becomes a medium, not the central point. Therefore, the question leading us to a student-centred approach, with proper use of digital media, should be how, or whether, to adapt digital media designs to help students more (Mayer, 2005).

There are several ways to answer Mayer's question. One of them offers the traditional methods of learning and education enhanced with new forms and learning methods, using digital media (Polackova and Jindrova, 2010). This is supported by Dillenbourg (2000), who sees the virtual learning environment as not only integrating a variety of digital media, but also integrating all the physical tools that can be found in a classroom (Dillenbourg, 2000: 12):

- A variety of non-computerised learning resources: physical tools, instruments, books, etc.
- A variety of interactions that are not computer-mediated: face-to-face discussion among students, lectures by the teacher, group discussions, including traditional media such as letters, TV, phone, fax, etc.
- A variety of activities that are not computer-based: field trips, role playing, etc.

So, according to Dillenbourg (2000), there is no need to draw a boundary between the physical and virtual worlds; the key is to integrate them, not to separate them.

The objective of this paper is to introduce the curriculum of the Marketing Communication Course. As a secondary objective, we seek to analyse whether there are statistically significant differences in study outcomes between different types of course designs.

MATERIALS AND METHODS

The term "curriculum" does not have a commonly agreed definition. Fraser and Bosanquet (2006) distinguish four meanings of the term curriculum: (1) the structure and content of a subject; (2) the structure and content of a programme of study; (3) the students' experience of learning; (4) a dynamic and interactive process of teaching and learning. For the purposes of this paper, definition (4) "the process of teaching and learning" has been chosen, together with definition (3), "the impact on the students' experience of learning" on the course level.

Process of teaching and learning

The methods used in the description of the teaching and learning process are analogy, observation, analysis, synthesis, modelling, and abstraction. The methods of analogy and modelling are used for developing the course design and inventing the plot, and for setting up the context and rules of the tools, which are used.

A pilot run of the design of the course was tested with students of the Marketing communication course taught in the spring semester of the academic year 2013/2014 at the Faculty of Economics and Management in the Czech University of Life Sciences in Prague. There were two different learning designs of the same course´s syllabus of Marketing Communication. The Marketing Communication course was taught in parallel in two different course designs: (1) course design with virtual market and (2) live case studies course design. The course was attended by 240 students in total. Each class was visited by a maximum of 20 students. The students had all the basic information about the two different course designs in advance, and they made their own decision which to attend (self-selection). This process ensured the starting balance of preferences in both compared designs. The students divided into seven classes with virtual market course design, which 136 students attended, where 98 (72%) students were females and 38 (28%) males. On the other hand, six classes with the live case studies course design were attended by 104 students, where 62 (60%) were females and 42 (40%) were males. Overall, the student group comprised 160 women and 80 men.

The impact on the students' experience of learning

In this paper, besides a description of the course structure, the impacts of the course curriculum on the students were also studied. Interviews were conducted at the end of the semester to find the students' perspectives, and their evaluation of the course design. A set of open questions was developed, addressing topics such as students' engagement, teaching process, students' learning outcomes, and likes or dislikes of the course.

To find how students evaluated the virtual market course design, all students who attended this course design (n=136) were asked to complete a short evaluation after the course and examination period were finished. Students evaluated the course design on a scale of: 1 – excellent, 2 – very good, 3 – good, 4 – poor, and 5 – terrible. Forms were anonymous, all students were asked to participate, and 129 forms were completed and analysed. The popularity of the virtual market course design, and also the impact on the students' learning outputs were investigated. As the benchmark for the evaluation of the learning efficiency of the students attending the virtual market course design, we used the usual form of the course design in the form of live case studies. The comparison between the live case studies course design (104 students) and virtual market course design (136 students) is based on the students' ratings. The comparisons were made using statistical analyses, where Pearson's χ^2 and Maximum Likelihood χ^2 tests were applied (Hendl, 2015).

The Marketing curriculum background

The aim of the Marketing communication course is to provide students with an understanding of the basic objectives, principles, and processes of marketing communications. The course consists of lectures, workshops, and students' teamwork, all with the support of digital media of various forms. The lectures are focused on the theoretical issues of marketing communications, together with examples of practical applications, short videos, and discussions with the students. In contrast, the workshops are designed as sessions of training in practical skills, where students deal with practical tasks from different fields of marketing communication, evaluate their own work, mutually share and discuss their advances, and are methodically guided during the development of marketing communications' skills. Lectures and workshops are supplemented by e-learning activities in the Moodle (Modular Object-Oriented Developmental Learning Environment) Learning Management System (LMS), where resources, forums, lessons, wikis, and workshops were used as basic tools for skills development courses, according to Cole and Foster (2007).

The course of Marketing Communication builds on the Marketing Fundamentals course and is followed-up by these courses: Marketing Research, Strategic Marketing, and Global Marketing. As the students enter this course with the basic knowledge of marketing principles from their previous course (Marketing Fundamentals) and continue to study different marketing issues in their later courses, the Marketing Communication course focusses on teaching the basic principles and tools of marketing communication. At the end of the semester, students should demonstrate an understanding of various communication tools and techniques, their use, planning and control in the marketing context.

Description of Virtual Market course design

There is a maximum of 20 students in the classroom. Students are divided into five teams, each team consisting of a maximum of five members. As there are twelve weeks in the semester, we have twelve workshops and six lectures. The lectures are delivered every second week. During the lectures, the theoretical backgrounds of the promotion and promotional mix are introduced. The workshops are divided into two categories – explanatory and advisory workshops. The overall view of the lectures and workshops in the course is shown in Table 1. Both the lectures and workshops last for 90 minutes.

Week No.	Topic of the lecture	Type of workshop	Workshop topic / task
1	Promotion in marketing mix.	Explanatory	Product's package development
2		Advisory	Product's package development
3	Public relations	Explanatory	Press release
4		Advisory	Press release
5	Advertising	Explanatory	Story board
6		Advisory	Story board, video making
7	Sales promotion	Explanatory	Plan of sales promotion
8		Advisory	Plan of sales promotion
9	Personal selling	Explanatory	Personal selling proposal
10		Advisory	Personal selling proposal
11	Integrated marketing communication	Explanatory	Virtual market
12		Advisory	Results from virtual market competition

Table 1: The structure of the course

Explanatory workshops

As the lectures are once in two weeks, the explanatory workshops follow the topic of the previous lecture and explain the topic in more depth in a practical way. During the explanatory workshop, students are always given a task within the lecture topic. The general scheme of the explanatory workshop is: *explanation of the problem → task introduction → task clarification → teamwork → independent teamwork.* The aim of the explanatory workshop is to brief students what to do, and to be sure they are not lost within the task. At the end of the explanatory workshop they should leave the class with a clear idea of their next procedure in their minds. After the explanatory workshop the students work on the task on their own in the teams.

Advisory workshops

The advisory workshops always follow the week after the explanatory workshops. These are used for the students to share their task development with each other and with the lecturers, with the possibility of improving the result. The general scheme of the explanatory workshop is: *each team presents its unique draft of the solution → brainwriting → sharing the ideas, comments, and suggestions with each other.* The lecturer is also involved in the process of brainwriting and sharing, in the role of facilitator.

Support from the learning management system

The Moodle learning management system (LMS) is used throughout the semester. It is used for sharing the lectures, content of explanatory workshops, and for uploading finished tasks from each team. There is a time limit for each task (packaging, press release, storyboard and video, sales promotion proposal, and personal selling proposal), which ends with start of the explanatory workshop for a new topic. In this way, the ongoing work of the students across the whole semester is arranged, thus avoiding the tendency to wait until

the last minute to complete the main task (a presentation for the virtual market).

Topics of the workshops

Topics of the workshops are scheduled in a particular sequence, which is shown in Figure 1.

Figure 1: The sequence of workshop topics in course design with virtual market

As the first topic, the students are introduced to the Product's idea and package development, and this assessment works as a motivation and creativity booster for the students. The special topics then follow: for the field of public relations it is the press release and media list, in the field of advertising it is the storyboard and producing the video advertisement, in the fields of personal selling and sales promotion we want students to make a proposal of the plan. The final task to which all previous tasks are orientated is the presentation of the students' promotion on the virtual market. As a background process of these topics and their sequence, we want students to go through five essential stages (Edmondson, 2013):

1. Aim high,
2. Team up,
3. Fail well,
4. Learn fast, and
5. Repeat.

Product's package development

The 1st (explanatory) workshop consists of an explanation of the importance of packaging for the product promotion and for the game, which will involve the students in the process of marketing promotion. The game helps us to engage the students' motivation. For this purpose, the game "Design the Box" (Gray, Brown and Macanufo, 2010: 161) was reworked. In this game teams get the task of making packaging for the imaginary product. The product might be anything they are able to think up. It might be an already-existing product, something waiting to be discovered, or even a product which has not or would not even ever exist. 'By imagining the package for their idea, the teams make decisions about important features and other aspects of their vision that are more difficult to articulate.' (Gray, Brown and Macanufo, 2010: 161). The students are given blank white or brown cardboard boxes. From these boxes they create the professional packaging for their imaginary products with all legal requirements according to law in the European Union. They can use any equipment, such markers, craft papers, stickers, tapes, images, etc. The process of creating the package box is very important for the course. It is the start of students' creative thinking. It is a connecting element for their enthusiasm, as they will discover they have no borders (except ethical and moral). It is also a great asset to their teamwork, as it is their first mutual output and they all are always very proud of it. They can also imagine their product and its features better, which is also important for the following workshops. During the course, we use this game as a focusing device (Gray, Brown and Macanufo, 2010), as students use the developed box in all workshops to remind them of their vision of the product and its characteristics. This idea is supported by Hackbert (2006), who says it is possible to use some teaching methods as a "hook" that enables them to engage and motivate students to learn. Edmondson (2013) mentions the importance of emotions as a motivator and reference point to return to in difficult times.

By the end of the workshop, several of the teams will still not know what product they should choose. This does not matter. The main goal, before the workshop ends, is to make sure all teams know that during the next workshop (which will be an advisory one) they will have to present at least their idea of the product and its packaging proposal.

At the beginning of the following advisory workshop, each team presents its idea of the product and its packaging. After each team presentation there is a discussion between all the teams and the lecturer. When all teams are done with their presentations, the brainwriting session starts. In this session, each team sums up the ideas, comments, or suggestions for other teams. During the brainwriting session, the proposals for the products' packaging are circulating around the classroom, so each team can analyse in depth each packaging from other teams. The lecturer does the same. When the brainwriting session is over all the teams have five lists of comments. It is up to each team whether they use the advice of the others or not. The advisory workshop ends with the repetition of the task and deadline for it to be uploaded onto the Moodle LMS.

Following workshops´ topics

During each of the workshops´ topics, students gain professional knowledge by means of "learning by doing". The topics are: for the field of public relations it is the press release and media relations, in the field of advertising it is the storyboard and making the advertising video, in the fields of personal selling and sales promotion we want students to know how to plan these activities.

The explanatory workshop for the field of public relations starts with an explanation of the basics of media relations, and continues with the press release, its characteristics, and ways to write a press release and produce a press kit. Then we let students work on their press release for their fictitious product.

The advisory workshop starts with the presentations of situations for which press release is made, various press release proposals follow. After discussion about each proposal the brainwriting session starts, where each teams' press releases circulate the classroom, so each team can analyse the content in depth. After the brainwriting session, teams deliver the lists of comments to the particular teams, so each team has five lists of comments to their press release proposal.

The explanatory workshop for the advertising begins with the analysis of advertisements, description of components which the advertisements consist of, explanation of how an advertisement is formed, storyboard concept, ways to do storyboards, and examples of storyboards. After this introduction, students are asked to do their own storyboards for the fictitious product they possess. At the beginning of the advisory workshop students present their proposals of their storyboards. After discussion about each proposal the brainwriting session starts. The proposals circulate the classroom, so each team can analyse the content in depth and make a list of comments. Teams deliver the lists to each other, so at the end each team has five lists of comments to their proposal of storyboard.

Explanatory workshops for personal selling and sales promotion have almost the same procedure. We start with the explanation of the field tools and how to make a plan in sales promotion and personal selling. After that the students start their teamwork on planning their own sales promotion and personal selling for their fictitious product. The advisory workshops always start with the presentations of the students' proposals, followed by discussions, and brainwriting sessions with proposals' circulating the classroom and the exchange of lists. When all topics are explained, and all tasks are completed and uploaded to the LMS, we can start with the competition on a virtual market.

Competition on virtual market

During the whole semester, we use Moodle as the Course Learning Management System. For the course design with virtual market we use the Moodle "Workshop module" with its' system and forms, which allows the students to evaluate each other. In the opinion of Cole and Foster (2007) the workshop module is the most complex tool available in Moodle. 'Workshops are designed so a student's work can be submitted and offered for peer review within a structured framework. Workshops provide a process for both instructor and peer feedback on open-ended assignments, such as essays and research papers. There are easy-to-use interfaces for uploading assignments, performing self-assessments, and peer reviews of other students' papers' (Cole and Foster, 2007: 95).

In practice, this means we have about 34 teams, each team uploads its promotional mix within the defined time frame. In the next time frame, they evaluate other teams' promotional mix. At the moment the time frame expires, the workshop module itself calculates the weighted score for each team and makes the final rating public with achieved scores and evaluation results.

Students know from the beginning of the course, that there will be virtual competition. They also know all the conditions. The process of the competition on virtual market is shown in Table 2.

1. Setup phase	2. Submission phase	3. Assessment phase	4. Grading evaluation phase	5. Concluding phase
1. Set the workshop description. 2. Set the workshop terms. 3. Provide instructions. 4. Edit assessment form.	1. Publish submissions deadline. 2. Submissions input. 3. Allocate submissions.	1. Open for assessment. 2. Publish assessment deadline. 3. Assessments input.	1. Calculate assessments grades. 2. Publish the ladder.	1. Provide the conclusion of the activity.

Table 2: Process of the competition on virtual market – LMS point of view

The view of the Learning Management System on the phases of Virtual Market shows five stages. The teacher must be active only in the setup phase and the concluding phase. All the other phases are performed by the system (controlling of deadlines, the phases switching, calculating grades, publishing the ladder), or students (uploading files, evaluating the proposals). The process of competition on virtual market from the students' point of view is shown in Table 3.

Although students perceive the process of competition on virtual market as one phase – the last one in Table 3 – the truth is that the process consists of four phases. The starting phase is the part where the students start to be drawn into the process of marketing communication because of their own ideas which they share, thus quickly transforming the group of individuals into a team. Edmondson (2013) divides this phase into two: aim high (choose the highest aims you can) and team up. The next phase is the phase where students prepare their promotion tools – it takes eight workshops, in which students discuss their ideas and have their opportunity to find whether their ideas might be accepted or not, and to rework it: "fail well, learn fast", according to Edmondson (2013). In the phase of preparation for the competition on the virtual market, the students consider making changes in their promotion tools, they should recall all the information and knowledge they have, or repeat (Edmondson, 2013). The process of competition on the virtual market itself is again the composition of all the phases according to Edmondson (2013), and it is the final process for students as they go through and evaluate the projects of the others – they should look up identical and different, compare, etc. The competition on virtual market serves as a social game with its competitive character, but it is also repetitive learning for students. As they evaluate as a team (each team has only one vote for each evaluated promotional mix), they have to communicate all the issues within the team first. This cycle ensures team communication and repetition of what they have been taught during the course.

As students evaluate the other teams' promotional mixes, they have guidance in the form of a scoring form – see Table 4.

Phase	Activity	Didactic purpose
Starting phase	Product development/imagination	Ignition of innovation, creativity, and motivation. Start of teamwork. Aim high and Team up (Edmondson, 2013).
	Product box development	
Phase of promotion tools	Press release, Media list	Development of learning motivation (learning about their own case). Ignition of cooperation mode in the course. Fail well and Learn fast (Edmondson, 2013).
	Storyboard, Advertisement video	
	Plan of personal selling	
	Plan of sales promotion	
Preparation for virtual market	Final completion of integrated marketing communication for market entering	Tailoring the tools, deepening the knowledge/experience. Ignition of the competition mode in the course. Repeat (Edmondson, 2013).
Virtual market	Uploading the documents	Ignition of the comparing mode in the course. Repetition of learned issues due to evaluation. Team up, Fail well, Learn fast, and Repeat (Edmondson, 2013).
	Team evaluation of other teams' products	
	Getting the results	

Table 3: Process of competition on virtual market from the view of students

Class of aspects	Evaluation of the	Maximum of points
Aspects evaluating product/packaging:	innovativeness of product idea	10
	packaging functions	10
	product meeting the customers' requirements/needs	10
Aspects evaluating public relations:	press release criteria	10
	presented media list (media targeting)	10
Aspects evaluating sales promotion:	suitability of used tools of sales promotion	10
	innovativeness of using sales promotion tools	10
Aspects evaluating personal selling:	suitability of used tools of personal selling	10
	innovativeness of using personal selling tools	10
Aspects evaluating advertising:	suitability of chosen type of advertisement	10
	suitability of appeals used in advertisement	10
	suggestive power of the advertisement	10
Aspects evaluating integrated marketing communications	information consistency between used promotion tools	30
Maximum points for assessment (total)		150

Table 4: Scoring guide

Good scoring guides ask specific questions about the work being evaluated (Cole and Foster, 2007). The scoring guide for competition on the virtual market contains specific questions on each of the 13 aspects in Table 4.

RESULTS

Sufficient attention must be paid not only to the course design and the learning context, but also to what was in the mind of individual students which motivated their learning process (Law, Lee and Yu, 2010). We therefore investigated the students' expectations from the course, and also examined the evaluation of the course.

Students' expectations

To find out what the expectations from the course design with virtual market were, we interviewed the students. The interviews were conducted at the end of the semester, so the students were able to express their early expectations before the course even started and compare it with reality. The students' expectations were linked to the nature of the marketing communications field like, for example, the presence of creativity in the course design "*I hoped there would be room for our ideas and solutions.*" Some students also expected only theory in the course: "*Reality exceeded my expectations. I expected the classical theory of 4P's and a lot of boring lectures. I really enjoyed the realism of the course. It is the first time I felt the lectures and workshops were really real-life not only theoretical background from the books.*" or "*I thought the course will be only theoretical. Developing the product was really genuine and interesting.*" There were, however, students who also expected more practice during the course: "*I expected to learn the basic tools of marketing communication in practice.*" From the interviews conducted, it turns out that students expected an interactive course with a lot of creativity, not only theory, but practical activities within the field of marketing communications, teamwork, a chance to try marketing communication tools, to experience some fun, and to learn something new, which they might use in their future professional life.

Students' evaluation of the course design with virtual market

We also asked students for their evaluation of the course design with virtual market. First, we let them speak during interviews, and then we let them complete a short evaluation form. The outcomes from conducted interviews were interesting, receiving positive responses

in the majority of cases: "*I evaluate this course as one of the most engaging courses I experienced. The tasks we were doing were different and more interesting than in other courses. I liked the system of teaching, where not only the teacher explains stuff but we were also allowed to discuss the tasks' outcomes or evaluate the work of the others.*" or "*I liked this subject very much, it was the first one I was looking forward to, there was fun during the tasks' fulfilment, and thanks to the practical tasks I remember everything.*" In addition, there were other comments, which show that the course design touched the students: "*The system of the course was interesting. I liked it. I experienced such a course design for the first time in my student's career; finally, there was something of action!*" Another opinion: "*I really appreciate the design of the course, where we chose our own product and we did all the marketing communication stuff around it. I felt very good in our team and I have a feeling all team members did enjoy developing the product. I also had a feeling that the other groups were also enjoying the course work.*"

Naturally, we also obtained some negative responses to the course design with virtual market: "*The evaluation form does not have to be so extensive (13 criteria). Time required to complete evaluation form was unexpected in the last week of the semester.*" or "*The virtual market's system would need some modifications to work better: 1) strictly follow the rule about the group and product naming. 2) The best and the worst ratings should be removed as the extreme values so the evaluation would be close to average. 3) To stress that finishing the evaluation form at once is necessary or the form will close and it will not be able to continue*". The negative responses contained the problem, but also gave an indication how to solve it - or even the full solution to the situation. This confirms the students' passion for the course design and the higher level of their motivation.

When the Marketing Communication course designed as virtual market was finished, the students had a chance to evaluate the course with the grades in the way teachers do. As can be seen in Figure 2, the students evaluated the course in five categories: excellent, very good, good, not appropriate, and terrible.

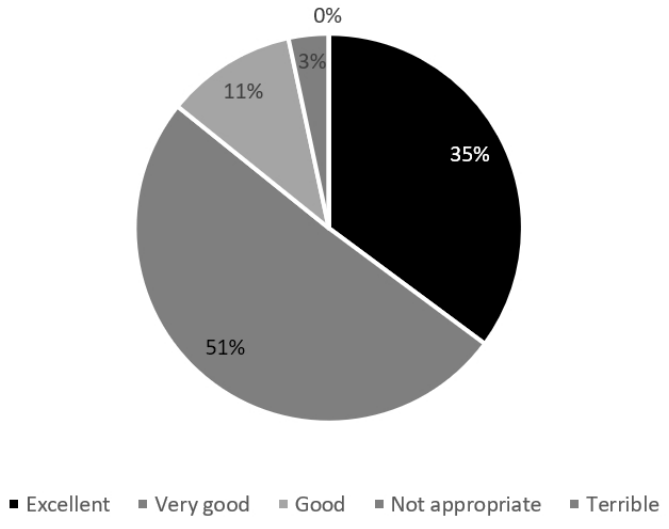

Figure 2: Students' evaluation of the Marketing Communications course designed as virtual market

The results show that the students liked the course design with virtual market a lot – 86% of the students evaluated it as either excellent or very good, 11% of the students were not so enthusiastic, and 3% were disappointed by the course design, but nobody thought the course design was terrible. Compared to other courses with which the authors have experience, such as the Management course, taught in the same semester and involving the same students, course design with virtual market rules. Even though the design of the Management course is quite innovative, and may be taken as the quality standard, the students' evaluation of the course shows that only 72% of them rated it as either excellent (11%) or very good, whilst 25% rated it as good, and 3% thought it was not appropriate (Svec, Ticha and Kaderakova, 2011). As before, no one thought the course was terrible – it shows the distinction in the students' perception of the course design with virtual market especially in category excellent (increase of 24% of students) and in category good (decrease of 14% of students). These shifts indicate students' increased interest in the course design with virtual market.

From the students' point of view, it is obvious that they enjoyed the course design with virtual market. The interviews also revealed some verdicts suggesting the positive impact of the course design to the learning outcomes, e.g.: "*…and thanks to the practical tasks I remember everything.*" Therefore, we might ask whether the design of the course really has any positive impact to the study results in general.

Comparison of study results

We teach the Marketing Communications course in parallel with another which has a different course design – live case teaching. Live case studies course design, according to Simkins (2001), we use in cooperation with external companies whose problem or issue in the field of marketing communication has not yet been resolved, and the company is seeking input from the students to assist them in making a decision.

To find out the impact of the course design with virtual market to the learning outcomes of students who attended it, the students' grades were taken from both types of courses designs, and comparative graphs were computed (Figure 3).

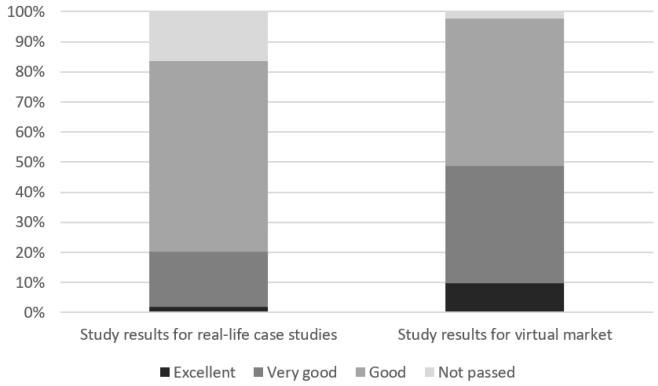

Figure 3: Study results in live case studies and virtual market course design

We used a four-point scale for grading as commonly used at the university: excellent, very good, good, and failed or not passed. Even so, it is apparent from the charts that the study results

differ between these two groups of students. The conducted statistical test (Table 5) confirms this result.

Statistics	Variables: Grades x VirtualM x LiveC		
	χ^2.	*df*	*p*-value
Pearson's χ^2	31.2104	4	.0000
M-V χ^2	33.6515	4	.0000

Table 5: χ^2 test of study results

The null hypothesis for Table 5 says: There is not a statistically significant difference in study results between the classes with live cases teaching and classes with virtual market design. The value of α is 0.05. As the *p*-value is less than the α value, we can say that there is a statistically significant difference in study results between the classes with live case studies and classes with virtual market.

DISCUSSION

The finding presented in the charts in Figure 3 shows the statistically significant difference in study results between the two course designs: live cases and virtual market. In the finding of possible cause, we have to say, that currently there is no agreement in contemporary literature, as to which student-centred method brings more efficient study outputs. Simkins (2001) believes that the live case learning requires the students to apply even deeper intellectual thinking, and as a result, achieve greater wisdom—more so than other pedagogical techniques. On the other side Hawrylyshyn (1967), who divides individual teaching methods focused on learners according to effectiveness of learning, or Merseth (1991), see the case method as effective especially for diagnosing problems, but of average effectiveness in making decisions.

There are also available the results of the research conducted at CULS Prague by authors Svec and Kaderabkova (2010) who found there is no statistically significant difference in study results coming from live case teaching and project-based teaching. The difference between the results might therefore lie in the context or focus in which the research had been conducted. Authors Simkins (2001) or Svec and Kaderabkova (2010) are focused on a particular teaching technique, but the course design with virtual market comprises of several techniques and, therefore, has a wider impact. This statement is supported by several authors who have evidenced the advantages of merging traditional classroom learning methods with experiential learning methods such as team-projects combining several courses, (Bobbitt et al., 2000), case-based courses (Blackmon, Hong and Choi, 2007), classroom projects (Camarero, Rodriguez and San Jose, 2009), semi-structured classroom activities (Hamer, 2000), and live cases (Elam and Spotts, 2004).

The explanation for the differences seen in Figure 3 may not only be due to the variety of teaching methods used; there is also another difference between both course designs: the overall learning process. Kolb (1984) gives the most detailed description of the overall learning process. Moreover, the author (Kolb, 1984) identifies four components in the learning process: affective (emotion), perceptual (perception), symbolic (process of thinking and cognitive abilities) and behavioural (actions). As in both courses designs the students learnt from their own experience, only in the virtual market design were they able to go through all four components of learning by Kolb (1984). In the words of Kolb and Kolb (2011), the students (in the virtual market design) thus touched all bases – that is, they lived, watched and reflected, thought, acted – in a recursive process that responds to the situation, and what can be learned in that situation. Students from the live case studies design were not able to track the impact of their decisions in the real situation. Therefore, they were not able to make any final reflection needed for their learning. Students from the live case studies course design were not able to learn Kolb's whole learning cycle.

With its placement in the programme curriculum, the Marketing Communication course is in its nature an introductory overview course, whose primary goal is to expose students to the basic concepts and vocabulary of this field of study. It is one in which the students develop a basic conceptual structure that serves as a foundation for more advanced courses (Cole and Foster, 2007: 196). However, as Cole and Foster (2007) stated, there is a basic problem with these types of courses – students may not be engaged by long lectures or vast texts. According to Cole and Foster (2007) students might be more interested in the course if they had the opportunity to apply basic concepts learned. This is what ensures skill-development, where students repetitively apply the important skills (Cole and Foster, 2007).

The virtual market course design unites both types of courses – that of introductory overview course, and also of skills development course, and due to the variety of activities, teaching methods used, and of full use of Kolb´s learning cycle it has a positive effect on the students´ study results. Based on the results of our research and our personal experience, we would recommend using the student-centred methods following the full process of the Kolb learning cycle.

CONCLUSION

The objective of the paper was to introduce the curriculum of the Marketing Communication Course. As a secondary objective, we sought to analyse whether there are statistically significant differences in study outputs between different types of course designs. We introduced our new approach to Marketing Communication teaching within the virtual market. Virtual market is both the introductory and development type of course design, which uses the experiential learning approach with a fully used cycle of learning according to Kolb and Kolb (2011). The conducted research showed the statistical differences in the study outputs of both course designs. As there are many research differences assessing the effectiveness of different teaching approaches, we will focus our future research on linking a coherent approach to the learning cycle and study outcomes.

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Full research paper

AFFECTIVE VARIABLES AND MOTIVATION AS PREDICTORS OF PROFICIENCY IN ENGLISH AS A FOREIGN LANGUAGE

Michaela Cocca[1]✉
Armando Cocca[1]

[1] Texas A&M University- San Antonio, United States of America

✉ michaelacocca@gmail.com

ABSTRACT

English has become a key subject of educational systems worldwide. Thus, researchers have centered their attention on psychosocial processes that influence English proficiency in EFL settings. The aim of our study was to investigate the relation between affective variables, motivation and proficiency and assess which attitudinal/motivational domains can better predict English proficiency. Mini AMTB and English Proficiency test were employed to a sample of 354 university students. Our findings showed that students' achievement was significantly associated with their motivational intensity, their attitude towards learning English and their desire to learn it, as well as with their opinion of English native speakers and their perception of the quality of the English course. Secondly, instrumental orientation, motivational intensity, attitude towards learning English, and students' perception of the quality of the English course were found to be the predictors of achievement. Thus, creating a culturally enriching in-class environment based on student-centered strategies could impact on pupils' proficiency more than teachers' teaching abilities and in-class attitude.

KEYWORDS

AMTB, affective variables, English proficiency, learning attitude, L2 motivation, social-cognitive approach

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Highlights

- *Instrumental and integrative motivations are not related with proficiency.*
- *Skills are linked with posture toward native speakers and perceived course quality.*
- *Extrinsic motivational regulation negatively predicts English abilities.*
- *Perception of the quality of English courses positively predicts proficiency.*

INTRODUCTION

Universities worldwide have been undergoing major changes, taking more proactive initiatives to include internationalization into their core missions and visions. Internationalization is a concept that describes the ways in which universities create partnerships, support international exchange of both their student and faculty, and promote linkages across foreign cultures and communities (Egron-Polak, 2012). In non-English speaking countries, these initiatives have mainly been associated with the increasing use of English as the main language of academia across a variety of fields such as research, technology, science, economy, etc. (González Ardeo, 2005). The desire to equip students with linguistic, pragmatic, and cultural skills and competencies that would ensure them better competitiveness in the global marked has led to numerous reforms and curricular changes (Amengual-Pizzaro, 2017; van Mulken and Hendricks, 2015). To increase students' academic, personal, and professional success and meet the set standards, many universities have included courses on English for Specific, Academic, and/or Occupational Purposes (ESP, EAP, EOP, respectively) to be part of the mandatory formal curriculum, as well as having English as the medium of instruction (Piller and Cho, 2013). In the light of these changes, studying the effect of affective variables on learning English as a foreign language (L2) is very essential, as motivation has been recognized as one of the most important determinants of L2 achievement and students' overall success (Dörnyei, 2001; Gardner, 1985; Masgoret and Gardner, 2003).

Over the past decades, the field of educational psychology has generated several leading theories that can be grouped into four distinct periods: the socio-psychological, the cognitive-situated, the process-oriented, and the socio-dynamic; each of them treating L2 motivational construct from a different perspective (Dörnyei and Ushioda, 2011). Despite the use different conceptualizations, research has always reached the same conclusion that motivation and L2 achievement are positively correlated (e.g. Bernardo, Amerigo and García, 2014; Papi and Teimouri, 2014; Waninge, Dörnyei, and De Bot, 2014). For the purpose of our research, we have decided to use Gardner's (1985) socio-educational model of language learning, due to the similarities our study context shares with the one of Gardner's study.

The Autonomous University of Nuevo Leon (UANL) is located in the north of Mexico, in the city of Monterrey, which is considered as one of the wealthiest cities in Mexico with many significant international corporations. Due to its commercial profile, US expats, and the proximity to the US it is often referred to as the most "Americanized" city (Contreras, 2009). Although Monterrey is not a bilingual city, per se, it represents many bilingual opportunities for its citizens. In line with the UANL *Vision 2020* (UANL, 2011), The Faculty of Sports Organization (FOD) has supported changes to the current English language teaching in three consecutive phases: 1. Replacing general English courses for ESP, EOP, as well as offering EAP for both students and faculty; 2. Starting a bilingual undergraduate program; and 3. Creating a bilingual master's in the area of Physical Activity and Health. The reason for implementing ESP courses was twofold: to enhance students' professional skills and increase their employability in the private sector (e.g. bilingual schools, international companies, etc.), as well as to fight the decline of students' attendance of general English courses.

Theoretical Framework

L2 motivation represents a multifaceted psychological construct that fuels one's desire to learn a second language (Dörnyei, 2005). It is a combination of both internal and external forces that drives individuals to put effort, desire, and a positive attitude into the process of learning (Gardner, 2006). Learners who lack the mentioned forces cannot be considered as motivated. In fact, Spolsky (1990) and Gardner (2006) similarly claim that higher motivated learners are more likely to learn faster and achieve better learning results. However, this would not be possible without the learners having a favorable attitude towards L2 learning. In this vein, research confirms the high inter-relatedness of attitudes and motivation as two key variables in L2 learning (Masgoret and Gardner, 2003; Bernaus et al., 2004). The Socio-Educational Model (Gardner, 1985, 2010) has long been used as one of the leading theoretical foundations in L2 learning motivation applied to EFL contexts; ESP in particular (Khodadad and Kaur, 2016). Language acquisition contexts, individual difference variables, antecedent factors, and outcomes are four tenet areas that underpin this model, explaining the interplay of language learning, culture- and L2-related attitudes, and the learning situation. This model further assets that language acquisition is dependent on the operation of individual variables such as language ability, strategies, intelligence, L2 motivation or language anxiety.

Authors have recognized two main components of motivation towards L2 learning: integrative and instrumental (Carrio-Pastor and Mestre, 2014; Gardner, 2010; Quan, 2014). Integrative motivation reflects the will and eagerness to integrate oneself into a community in which a different language is spoken. It also describes the wish to communicate with people within a different community, as well as the interest and positive attitude towards them. Furthermore, it is also characterized by the positive attitudes that learners hold towards any aspect of the teaching-learning context (Gardner, 1985, 2010). According to Gardner (2010), integrativness refers to the extent of one's interest to get involved and identify oneself with the L2 community. Johnson (2001) and Saville-Troike (2006) see instrumental motivation from a purely practical point of view, naming increased professional opportunities, better socioeconomic condition, accessing scientific/technical literature, or successfully completing a school test or course. Their definition seems to be particularly fitting to contexts, where knowing English as a foreign/second language, may improve one's social and professional status.

Over the decades, the language-learning literature has generated various definitions and stances on the term attitude. Attitudes can be described as a cognitive disposition that determines ones' behavior that provokes both favorable and unfavorable reactions towards a variety of psychological objects such as person, symbol, idea, phrase, etc. (Kiesler, Nisbett, & Zanna, 1969; Edwards, 1994). They are believed to constitute of three components – cognitive, affective and conative – which can be further analyzed according to a variety of traits (Scott, 1968). As Shaw and Wright (1967) and Lemon (1973) state, attitudes represent a system of learned evaluative and affective reactions that are dynamically interrelated with the environment and thus might be shaped and/or changed by further learning. In the language context, attitudes are understood as input-based cognitive reflections of attitudes that L2 learners hold towards a language and its speakers. Gardner (1985) hypothesizes that learners' attitude towards a target language community is positively correlated with the pace and time needed for acquiring such language. In similar vein, Crystal (2010) agrees that the degree of perception of a country or culture is highly associated with language learning achievement. These assumptions stem from Gardner's theory that beyond the traditional classroom-based linguistic outputs, students are also acquiring both cultural and social skills and behaviors that are typical of the target culture. Thus, not having favorable attitudes may hinder students' learning potential.

Although both terms represent distinct factors that play an important role in second language learning, there is no doubt that they are highly interrelated, as there cannot be favorable attitudes without having a positive energy to sustain them, as well as there cannot be positive behavior without a proper mind set. Owing to that, different approaches and instruments were used to determine what motivates language learners towards learning EFL, focusing on motivation in general (Iwaniec, 2014), learning motivation (Xu and Gao, 2014), anxiety, attitude and motivation (e.g. Bernaus and

Gardner, 2008; Jain and Sidhu, 2013; Cheng et al., 2014), or integrative and instrumental aspects of motivation (Samad, Etemadzadeh and Far, 2012; Feng and Fan, 2012). Yet, to our knowledge, very few studies have focused on the relation between affective variables and language proficiency. A recent study by Alrabai and Moskovsky (2016) demonstrated that motivation, attitude, anxiety, self-esteem and autonomy play an important role in L2 achievement. For their sample, motivation accounted for the highest variance in achievement. Unlike in other studies (Gardner and MacIntyre, 1993; Horwitz, 2010), anxiety was found to have the least predictive capacity towards L2 acquisition in general, and achievement in particular. When studying different types of motivation, Cheng et al. (2014) found that the higher intrinsic motivation, the better students perform at English tests. On the contrary, the higher instrumental motivation, the lower test scores. As indicated in Bernaus and Gardner (2008), motivation – namely integration, attitudes towards the learning situation, and instrumental orientation – was found to be a positive predictor of English achievement. On the other hand, attitude towards the learning situation and language anxiety were found to be negative predictors of English achievement. In a similar vein, Khodadad and Kaur (2016) corroborated that the effect of motivation on EFL achievement was significantly greater when affected by attitudes towards the learning situation, integrativeness, and self-efficacy. The results from Jain and Sidhu (2013) showed that students were highly motivated and had a positive attitude towards studying English as a second language. Despite high level of anxiety, low proficiency students had higher and significant relationship in attitude and motivation than their high proficiency peers. As cited in Thang, Ting and Nurjanah (2011), these results were found to be in contrast with previous studies that demonstrated that low-achievers are likely to be reluctant in studying English and consequently they commonly obtain lower proficiency scores. Another study revealed that integrative motivation and English skills are positively correlated (Samad, Etemadzadeh and Far, 2012). In opposition with these outcomes, a study carried out by Sandoval Pineda (2011) with Mexican university students showed that different proficiency scores did not depend on the intensity and type of motivation, nor on the attitude that students had towards English speakers and Anglophone culture. However, the instrument used by this author was not fully reliable for the Mexican environment. A recent study by Cocca et al. (2017) demonstrated that changes were needed in order to achieve internal and structural validity.

Given the crucial role learning English plays in both academic and professional contexts and the changes to English programs at FOD, it is important to understand student's motivation, attitude and affective variables towards L2 learning and proficiency. Secondly, although there are a few studies that have investigated the relation between the different constructs of motivation and English proficiency, this particular field of interest seems to be the least researched. Therefore, more research is required to delve into the processes that regulate individuals' motivation towards L2 learning and its impact on their English skills proficiency. Thus, the objective of the article is to analyze the relationship between affective variables, motivation, and EFL proficiency level. For this purpose, this article addresses the following research questions:

- Is there a correlation between motivational domains and EFL proficiency in university students?
- Which motivational domains can better predict successful development of skills in EFL?

MATERIALS AND METHODS

Design and Sample

The study is based on a correlational and observational approach. The design is non-experimental as no variable was manipulated and the sample was composed of natural groups. The population of this study was represented by university students coursing from second to sixth semester at the Faculty of Sports Organization (FOD) of the Autonomous University of Nuevo Leon (UANL) and officially enrolled in the English courses. We decided to exclude first-semester students as they had not yet participated in the English courses offered by FOD and, therefore, their answers regarding teacher/course evaluation could have been affected by prior experience with language courses attended during their previous studies. In addition, all English courses at FOD conclude after sixth semester, consequently students enrolled in seventh, eight, or ninth semester were also excluded. A total of 1,496 individuals matched the above-mentioned inclusion criteria. The sample size, calculated with confidence level of 95% and relative standard error of 2.17%, was set at 354 participants, who were selected using a combination of two sampling techniques. Firstly, we employed a sampling technique based on stratification and proportional affixation in order to maintain representative proportions of students based on gender and semester. As a result, the final sample was constituted by 266 men and 88 women enrolled in the bachelor program at FOD in Fall 2017, as shown in table 1. Secondly, non-probabilistic sampling based on convenience was applied to reach the minimum number of participants.

Semester	Gender	*n*	Age
Second	Men	98	18.57 ± 0.828
	Women	13	18.53 ± 0.710
Third	Men	65	18.96 ± 0.994
	Women	18	18.88 ± 0.865
Forth	Men	48	19.05 ± 0.982
	Women	15	19.03 ± 1.203
Fifth	Men	27	19.34 ± 2.296
	Women	31	19.08 ± 2.321
Sixth	Men	28	19.57 ± 2.124
	Women	11	19.43 ± 2.138
Overall	Men	266	19.09 ± 2.321
	Women	88	18.99 ± 2.124
	Total	354	19.04 ± 3.546

Table 1: Descriptive information of the sample by semester and gender, 2016-2017

Instruments

Attitude/Motivation Test Battery. A previously adapted and validated Mexican version of mini-Attitude/Motivation Test Battery ([S-AMTB], Cocca et al., 2017) was used. This version is composed by 43 items distributed into nine dimensions: (1) interest towards learning languages; (2) intensity of motivation; (3) evaluation of English teachers; (4) attitude towards learning English; (5) attitude towards English speakers; (6) integrative orientation; (7) will to learn English; (8) evaluation of the English course; and (9) instrumental orientation. The instrument is based on a Likert-type scale from total disagreement (1) to total agreement (7). This questionnaire measures different aspects of motivation towards learning L2, with the main focus on English as a second language. S-AMTB used in this study sample showed high results both for reliability (α =.985) and structural validity (χ^2/df = 1.7; Root Mean Square Error of Approximation = 0.055; Non-Formed Fit Index =.988; Comparative Fit Index =.989).

Placement Test. A placement test from Oxford University Press was used to determine students' English proficiency. Oxford placement tests are calibrated against the majority of international language examinations and are considered a reliable source of English learners' levels worldwide. The test applied in this research was provided together with text books *Solutions* used in English courses at FOD (Falla and Davies, 2013). It focuses on elementary, pre-intermediate, and intermediate levels. The exam was created by experts from Oxford University in accordance with teaching-learning processes, strategies, and contents presented in *Solutions* text book (Edwards, 2007). Considering that all participants in our study used this text book, selecting the correspondent placement test was a necessary measure. This test consisted of four parts: (1) Grammar and Vocabulary; (2) Reading; (3) Listening; and (4) Writing. The highest possible score was 90 points (pts): 50pts, 10pts, 20pts, and 10pts for each one of the parts, respectively. Based on the scores obtained, students were then divided into three proficiency levels: (1) elementary (0-38pts); (2) Pre-intermediate (39-61pts); and (3) Intermediate (62-90pts).

As a requirement for studying at FOD, at the beginning and at the end of each semester, students must take an English placement test. The placement test is usually carried out at FOD facilities. The day of the final exam, in the last week of the semester, students included in the sample were called to answer the S-AMTB questionnaire before taking the placement test. This sequence was established because coping with the exam could have had a negative impact on participants' momentary attitude towards English.

Data analysis

Prior to analyzing the data, descriptive and frequency analyses were run in order to detect any possible mistake during the process of data transfer. Successively, a study of outliers was carried out using the standardized scores and Mahalanobis D^2 techniques. Once the data set was ready for analysis, we run correlation analyses and multiple linear regressions (MLR) using the enter method. In addition, collinearity diagnostic, casewise and Durbin-Watson tests, Cook's distances and Leverage points were evaluated to confirm the validity of the model. Moreover, scatterplots were analyzed in order to confirm linear relationships between the independent and dependent variables included in this research.

RESULTS

Results of English proficiency showed that 155 students (43.8% of the sample) were found to have elementary level, 107 students (30.2%) obtained pre-intermediate scores, and 92 students (26.0%) achieved intermediate English level. Average proficiency score was set at 32.31 (SD = 13.60). Descriptive results for the dimensions of the S-AMTB questionnaire are shown in table 2.

AMTB dimensions	Mean	SD
Interest towards learning languages	5.75	0.99
Intensity of motivation	5.60	0.98
Evaluation of English teachers	5.07	0.95
Attitude towards learning English	5.77	1.02
Attitude towards English speakers	5.30	1.19
Integrative orientation	5.88	1.02
Will to learn English	5.69	0.99
Evaluation of the English course	5.19	1.28
Instrumental orientation	5.71	0.96

Table 2: Descriptive results from the Attitude/Motivation Test Battery (AMTB), 2016-2017

Proficiency scores were found to be significantly correlated with the intensity of students' motivation towards L2, students' attitude towards learning English, students' opinion of English speakers, their desire to learn English, and their evaluation of the English course quality. No relation was found between proficiency and participants' interest towards learning languages, their evaluation of English teachers, integrative or instrumental orientation. Detailed outcomes are shown in table 3.

Tests were run for assessing the validity of MLR. The first diagnostic analysis revealed the presence of five outliers due to high leverage (> 1.234); three outliers due to high values of Cook's distance (> 1.1); one outlier due to high residual's size (> 3.34); and five outliers due to a combination of high leverage and Cook's distance. After we dropped these 14 cases, the diagnostic analysis demonstrated high reliability for the model. Independence of residuals was confirmed by Durbin-Watson statistic of 1.706. Normal distribution of residuals was examined by means of histogram and P-P plot. Linear relationships and homoscedasticity were checked inspecting scatterplots and partial regression plots. No correlations between variables included in the model had high coefficient ($r < \pm.489$), as well as values for tolerance and variance inflation factor (VIF) were good for the model (tolerance >.275; VIF < 4.569), rejecting possible multicollinearities. Presence of further outliers was discarded by running case-wise diagnostics of standardized residuals (-1.83 < SR < 2.36), leverage points (Leverage <.086) and influential points (Cook's distance <.051).

S-AMTB dimensions	Coefficient	*p*
Interest towards learning languages	.064	.230
Intensity of motivation	.210	.001**
Evaluation of English teachers	.102	.056
Attitude towards learning English	.212	.001**
Attitude towards English speakers	.136	.010*
Integrative orientation	.104	.051
Will to learn English	.148	.005**
Evaluation of the English course	.134	.012*
Instrumental orientation	.036	.499

Table 3: Correlations between mini-Attitude/Motivation Test Battery (S-AMTB) dimensions and proficiency scores, 2016-2017

*Note: * p <.05; ** p <.001*

Variable	*B*	SE_B	*β*
Intercept	27.540	5.421	
Interest towards learning languages	2.277	1.276	.149
Intensity of motivation	3.547	1.801	.234*
Evaluation of English teachers	2.667	1.459	.178
Attitude towards learning English	3.827	1.832	.251*
Attitude towards English speakers	1.572	1.246	.126
Integrative orientation	.156	1.879	.010
Will to learn English	1.579	1.771	.102
Evaluation of the English course	4.204	1.672	.276*
Instrumental orientation	-5.360	1.580	-.331**

Table 4: Summary of the model predicting English proficiency, 2016-2017

*Note: * p <.05; ** p <.001; B = unstandardized regression coefficient; SE_B = standard error of the coefficient; β = standardized coefficient*

The model was statistically significant for predicting English proficiency ($F_{9.330} = 5.813$, $p < .001$, $R^2 = .437$). Effect size was calculated by means of Cohen's f^2 ($f^2 = .776$). The variables: intensity of motivation, attitude towards learning English, evaluation of the English course, and instrumental orientation added statistical significance to the prediction ($p < .05$). Interest towards learning English, evaluation of English teachers, attitude towards English speakers, integrative orientation, and will to learn English did not fit significantly into the final model. Regression coefficients and standard errors are shown in Table 4.

DISCUSSION

The aims of this study were to assess correlations between different dimensions of affective variables and motivation and young adults' English proficiency in the Mexican setting; and to appraise the reliability of a prediction model in order to establish which dimensions of these constructs might estimate the development of English language skills.

The study of the interaction between a complex construct such as attitudes and motivation, and the proneness to learning a foreign language, as well as the development of communicative skills, has given contradictory results. Our outcomes showed that English proficiency is highly correlated with the intensity of students' motivation, the attitude that students have towards learning this language, and their will to learn it. As Zarrinabadi (2014) confirms, overall motivation and desire to learn a language are strongly related with higher knowledge and communicative skills. Also, we found significant correlations of English skills with students' motivation originated from the quality of the English course they are enrolled in. In line with our findings, Bernaus and Gardner (2008) found out that the characteristics of an English course, regardless of teachers' abilities and empathy, may affect individuals' attitude towards learning, as well as the development of L2 skills. Similar to our results, authors have stressed the importance of individuals' attitude towards the course, towards learning languages, and towards English specifically, as the main correlates of the development of abilities in EFL learning (Bur, Haas and Ferriere, 2015). This is an interesting result as it puts the emphasis on the need for properly planning course curricula and creating attractive activities over teachers' teaching ability, or their emotional connection with students. It is to say that although teachers' attitude can foster pupils' willingness to enroll in a course or to use L2 to communicate, this does not always directly imply high development of skills (Byun, 2013; Zarrinabadi, 2014). Even though building an English course in accordance with the needs of a specific population of students can support their knowledge and abilities (Greenfader, Brouilette and Farkas, 2015; Stanat et al., 2012), lack of planning and inappropriate teaching strategies can cause a drop in L2 proficiency (Bouazid and Le Roux, 2014). In the same vein, Jodaei et al. (2018) discovered that despite of high initial motivation, students demonstrated a great motivational decline by the end of an English course, finding that situation-specific factors (e.g. management issues, timing, planning, assessment, facilities)

played a significant role. In conclusion, planning courses and activities that students perceive as interesting and stimulating appears to play an important role in predicting the development of English skills, regardless of teachers' teaching abilities or empathy with their students (Masrom, Alwi and Daud, 2015). At the same time, teaching materials and methodology has been recognized as one of the key factors for success in ESP courses (González Ardeo, 2016), suggesting cooperative learning and similar strategies as means to enhance proficiency (Azizinezhad, Hashemi and Darvishi, 2013).

Another interesting finding of our research was the positive correlation between English skills and students' attitude towards English native speakers. This particular result can be explained by the geographical proximity between Mexico and the United States and its influence on Mexican culture and economy. On the other hand, if the features of a certain society do not match with students' beliefs, proficiency may be negatively affected (Jiang and Zheng, 2013). Our findings appear to be in contrast with additional research supporting an antithetical theory. Jain and Sidhu (2013) affirm that motivation towards L2 is an independent element of the process of learning, which does not necessarily relate with individuals' abilities. This statement is supported by findings in different contexts, highlighting that motivation can be linked with engagement in L2 courses, but not with final proficiency (Alavi and Abbasnia, 2014; Fahim and Bagheri, 2012). However, we need to consider that our results showed no correlation of proficiency with certain domains of motivation such as attitude towards English teachers' ability, interest towards learning foreign languages, and motivational intensity. This confirms previous findings from other studies, pointing out that students' motivation originated by teachers' ability may reinforce participation, but not proficiency (Bernaus and Gardner, 2008; Luong-Phan and Effeney, 2015). Similarly, MacIntyre and Blackie (2012) added that students' efficacy in L2 is not associated with their attitude towards the specific language, their interest and desire to learn it, or their motivational intensity. Our results showed that the most impacting predictor of English level in our sample was instrumental orientation. Nonetheless, in our model, proficiency is higher when students obtain lower scores of this variable, due to a negative relation underlined by the prediction coefficient (-5.360). According to Gardner and MacIntyre (1993), instrumental orientation identifies the extrinsic motivation towards learning English, i.e. how this language can help individuals improve their lives in a practical way such as higher social consideration, better jobs, increased wages, etc. As expected, in line with the main theories on motivation (Deci and Ryan, 1985, 2008), the presence of external reinforcements, either reward or punishment, affects negatively learning autonomy and commonly reduces the chances of success. Most of the students at FOD have part-time jobs to support their families or to pay their tuition, or they need extra credits in order to hold their scholarships. In accordance with the model found in this study and considering that the average proficiency for our sample was set at the score of 32.31 (low, elementary level), it is possible that many of the participants attend the English courses only to pursue better job conditions or more credits, both representing factors of an instrumental orientation of motivation. In accordance with the main social-cognitive theories on motivation, instrumental motivation represents a strong negative predictor of success in studying foreign languages. As a consequence, even though students may enroll in an English course to seek external goals, language school managers and English teachers should plan strategies and activities that awaken pupils' interest towards English culture and English native speakers. In this sense, in- and out-of-class foreign culture promotion may prompt students' attention and stimulate them to learn English for more intrinsic purposes (Macianskiene and Bijeikiene, 2013).

Furthermore, our model showed that motivational intensity, attitude towards learning English, and perceived quality of the English course represent positive predictors of proficiency, though less significant than instrumental motivation. These outcomes are in line with the model proposed by Bernaus and Gardner (2008), in which integrative and instrumental orientation, as well as attitude towards the English course, were the strongest antecedents of achievement in L2. Karlak and Velki (2015) proposed a prediction model based on language characteristics motivation and learner characteristics motivation as the main predictors of success. However, they explain that the former refers to the value that students assign to L2, either instrumental or integrative; whereas the latter refers to self-confidence and students' attitude towards learning L2. In addition, learning context motivation, which describes perceived teaching style and course structure and methodology, also significantly summed to the model. This pattern is comparable to our findings, as well as to those from other research (Gardner, 2010; McEown, Noels and Saumure, 2014). Although it is important to respect academic freedom with respect to teaching and course planning, i.e. placing on the instructors the responsibility of selecting materials, defining course content and determining evaluation methods, this individualistic approach might, especially in language teaching, lead to the discontinuity and significant differences in course delivery. Thus, teachers (tenured, instructors, adjuncts, remote, etc.) contributing to EFL programs should work collaboratively on planning and design; making sure that programs are structured and aligned to standards both vertically and horizontally.

CONCLUSIONS

Although there exist many factors indicating students' success in using L2, proficiency represents the most important sign of well-developed L2 skills and knowledge, as well as it indicates higher chances of success for individuals living in foreign countries (Daller and Phelan, 2013). It is known that motivation towards learning L2 is an important factor for engaging in L2 courses as well as for avoiding burn-out and consequently participation drop-out. However, its direct relation with students' achievement in L2 is still under discussion, since research has revealed contradictory results. In spite of the sample limitation in terms of a fixed environment, our study supports the hypothesis that motivation influences EFL proficiency. Yet, our findings underline the need of investigating the different domains of this psychological construct separately, as they can affect students' engagement and success in EFL depending on social, cultural and even geographical aspects. Moreover, lesson planning

with student-centered tasks as well as cultural awareness and promotion seem to play a key role in increasing students' L2 motivation and proficiency. Thus, teachers could plan lessons/activities using strategies such as cooperative, inquiry, and/or project-based learning, content-based instruction, or scenario-based classroom that are recognized to support students' personal, social, cognitive, and emotional growth. Furthermore, using technology and digital resources will allow students to explore, experiment and interact with the target culture (Dema and Moeller, 2012).

In the future, we suggest increasing sample size in order to analyze the variance of different motivational domains depending on gender, age, but also enrollment in English courses organized by other institutions or language schools. Nourinezhad, Kargar and Rostampour (2015) comment that the relation between motivation and students' achievement may change at the beginning, middle, and at the end of a proposed course. Therefore, it would be interesting to propose longitudinal studies in order to understand how motivation and proficiency change and relate to each other in the course of time.

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Full research paper

ASSESSMENT OF KNOWLEDGE SHARING FACTORS AMONG ACADEMIC STAFF IN NIGERIAN UNIVERSITIES

Olamilekan Gbenga Oyenuga[1]✉
Sulaimon Olanrewaju Adebiyi[2]
Damilola Omolade Mustapha[3]
Bukola Oluwadamilola Abimbola[2]

[1] Department of Business Administration, University of Lagos, Nigeria

[2]University of Lagos, Nigeria

[3]J'ennique consulting Limited, Nigeria

✉ oyenuga_olamilekan@yahoo.com

ABSTRACT

As a core process to knowledge management that aids innovation and regeneration of knowledge among individuals within institutions, knowledge sharing cannot be overemphasized owing to its importance in gaining competitive edge and sustaining competitive advantage. Therefore, as citadel of learning, academic institutions need to measure the factors that influence knowledge sharing among its scholars using approved multi criteria model such as analytic network process (ANP) in order to formulate and implement research-driven strategies for sharing knowledge in a way that global competiveness will be enhanced. The research design is quantitative and analytical in nature through a survey of experts (Lecturers) with usage of pairwise comparison questionnaire. Sample was drawn through multi-stage sampling procedure and 102 copies of questionnaires were retrieved and found fit for analysis. In addition, Ardichvili's framework of factors contributing to knowledge sharing was adapted within the Nigerian cultural setting in order to widen the scope of knowledge. Data collected were model into clusters in line with ANP technique. The results show that respondents believe that institutional norms factors were better motivator for knowledge sharing of which institutional culture stand out. In spite of the available organizational barriers, academia believe that individual barriers are disastrous to knowledge sharing.

KEYWORDS

Knowledge, knowledge sharing, Analytic Network Process, pairwise comparison

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Highlights

- *The assessment of knowledge sharing factors via quantitative approach within the Nigerian academic setting depicts institutional norms as a significant drive to promoting knowledge sharing among academic staff.*
- *The depth of cultural differences amid study respondents significantly contribute to knowledge hoarding among staff making it a core barrier compare to its pairs.*
- *On the university mission, academic research and development was influenced more by measured knowledge sharing determinants compare to its pairs.*
- *To aid global competitiveness, policy makers are advised to necessitate the need for academic staff progress in career, intellectual benefits and financial rewards, and strong campaign against cultural differences, and high job politics, in order to improve the flow of knowledge among academics.*

INTRODUCTION

In this digital age, knowledge as an economic asset which is constantly generated within institutions has become a prominent resource utilized by progressive institutions in gaining a competitive edge and sustaining competitive advantage (Amayah, 2013; Drucker, 1995; Sandhu, Jain and Ahmad, 2011) over other institutions within and outside their industry. Therefore, universities need to impose the act of knowledge sharing and its management in order to aid the transformation of such institutions into global learning institutions that create and sustain competitive value (Sandhu, Jain and Ahmad, 2011; Senge, 1990). More

so, if properly shared, knowledge from diverse disciplines can help to aid development in economic, industrial, governmental and societal issues within the multifaceted and ever-changing environment such as Nigeria. However, the nature of knowledge (that is, the embedment of knowledge in individual's cognitive mind; which makes it difficult to share) and the voluntary dimension to knowledge sharing (Amayah, 2013) in line with varying indicators of knowledge sharing has significantly and negatively affected the basic importance and the diverse strategies inculcated by tertiary institution in their crux for effective dissemination of knowledge sharing.

In view of this, with the aid of multi-criteria decision analysis technique (such as Analytic Network Process), multiple and conflicting interests of academic staff will be effectively diagnosed. The Analytic Network Process (ANP) is an improved and generalized form of Analytic Hierarchy Process (AHP) proposed by Saaty (1996). It is a comprehensive multi-attribute decision-making technique that helps in modelling complex environmental situations involving risk and uncertainty and to incorporate both interaction and feedback within elements in a cluster (inner dependence) and between clusters (outer dependence) as perceived by decision-makers (Saaty, 1996). As an extension of AHP, it has been utilized for societal, governmental and corporate decisions problem analysis (Saaty, 2008). Thus, in order to evaluate the in-depth importance of knowledge sharing, its varying driving forces and barriers with the aim of gaining an overall intellectual ground on the subject matter particularly in institutions within the developing country like Nigeria, an analytical tool like ANP is crucial.

Research Objectives

The aim of this study is to measure views about the determinants of knowledge sharing within academic settings. The specific objectives are to:

1. examine the extent to which individual barriers to knowledge sharing hinders academia intention to share knowledge in the University of Lagos using Analytical Network Process model,
2. evaluate the extent to which motivating factors drives academia willingness to knowledge sharing in the University of Lagos using Analytical Network Process model,
3. ascertain how the determinants of knowledge sharing (motivators, and barriers) reflect on the university mission using Analytical Network Process model.

Knowledge and Knowledge Management

In accordance to the literature review and the present global information age, knowledge has been referred as valuable business resource which is vital for wealth generation (Cheng, Ho and Lau, 2011). It is individual credence based on justification (Nonaka, 1994), pertinent and central to continuous learning in institutions (Sandhu, Jain and Ahmad, 2011). Knowledge has been classified into two, tacit and explicit knowledge. Tacit knowledge is referred to as intangible and personal knowledge that is deep-rooted in the cognitive minds of human, which makes it difficult to codify and eloquent (Polanyi, 1998; Sandhu, Jain and Ahmad,2011; Sun and Scott, 2018). Alternatively, explicit knowledge is a formal, logical, codified knowledge that is easily expressed into records (Polanyi, 1998; Amayah, 2013). Thus, explicit knowledge is an objective form of knowledge which can be easily communicated in visual formats, audio recording and printed papers for its reclaim and redesign among individuals for their intellectual growth and development (Awodoyin et al, 2016; Nonaka and Takeuchi, 1995; Sun and Scott, 2018). Despite their relevance, the embedment of knowledge in humans' mind and the voluntary aspect to knowledge sharing (Amayah, 2013) makes it difficult to share. In view of this, knowledge management has been conceived as a holistic effort in acquiring deeply rooted knowledge asset in cognitive minds of human for individual and organizational use in decision-making (Davenport andPrusak, 1998; Ghodsian et al, 2017). In other perspectives, knowledge management was coined as a business strategy that entails creation, accretion, sharing and deployment of new and potential knowledge to accomplish long term sustainable competitive advantage (Sarkindaji, Bin Hashim and Abdullateef, 2014). Therefore, being that knowledge is a competitive power; it is managerial process which enables individuals to create, share and utilize knowledge needs to be systematically driven at the right time for the right people in order to aid capacity building within and beyond the shores of educational institutions (Holm, 2001). Furthermore, universities are obliged to manage their available intellectual capital both tacit and explicit knowledge in order to support innovative acts by academic staff that sustains competitive advantage. Altogether, for efficiency in knowledge management, knowledge sharing needs to be highly emphasized (Davenport and Prusak, 1998; Luo, 2009; Nonaka, 1994; Sandhu, Jain and Ahmad, 2011).

Knowledge Sharing and Indicators of Knowledge Sharing

Knowledge sharing is the act of disseminating intellectual capital among individuals within an organisation. According to Lin (2007), knowledge sharing has been conceived as socially-oriented process that involves the exchange of intellectual asset, expertise and experiences among individuals within an institution. This is believed to be a switch of the logical capacity of employees among itself within an organisation. In addition, it entails the conversion of information into an easy communicable form that can be processed and used by others (Ipe, 2003) for their growth and the overall development of their institutions. Hence, it is expected that to promote the effectiveness of organizational performance, gain a competitive edge and sustain competitive advantage, organizations (such as academic institutions) need to enhance the effort of knowledge sharing and knowledge management in its systemic processes (Felin and Hesterly, 2007; Sandhu, Jain and Ahmad, 2011). Although, the fact that knowledge is ingrained in human minds hardens willingness to share

knowledge on the bases that individuals are subjected to their will to either share or not. Consequently, Nonaka (1994) opined that success in knowledge sharing is vested on the individuals and the commitment of organisation because technologies are only ascribed as enablers. Therefore, it is expected that institutions emphasize more on factors motivating and/or hindering the sharing of knowledge among individuals.

Regarding this, Bock et al (2005) observed factors influencing knowledge sharing intentions through the integration of Ajzen and Fishbein (1980) theory of Reasoned Action with extrinsic motivators, social-psychological forces and organizational climate factors. Therefore, with the field survey of managers from 27 Korean organizations, the study discovered that attitude towards knowledge sharing with the subjective norms and organizational climate had a significant influence on individual's willingness to knowledge sharing. In addition, expected reciprocal relationships were found to show a positive influence on attitudes towards knowledge sharing while the sense of self-worth and organizational climate influence subjective norms. Anticipated extrinsic rewards negatively influence knowledge sharing behaviour. Moreover, while adopting Ardichvili (2008) framework of determinants of knowledge sharing, Amayah (2013) investigated factors influencing knowledge sharing in a Public sector organisation. The study utilized a survey-based research design and finds out that community-related factor, normative factors and personal benefits were three motivators with the exclusive contribution to knowledge sharing. In addition, enablers like social interaction, rewards and organizational support were found to have a significant effect on knowledge sharing. Furthermore, it was observed that the degree of courage and degree of empathy were barriers that have a significant effect on knowledge sharing. While Sandhu, Jain and Ahmad (2011) used several factors to ascertain public sector employees' perspective towards the need to share knowledge. It also examined knowledge sharing barriers and initiatives that may promote knowledge sharing. The study was carried out through a survey based methodology with 60% response rate and the findings were that employees felt it is important to share knowledge in order to gain a competitive advantage. Moreover, they felt that use of email systems, information communication technology and the promotion of inter-agency activities with top management support are initiatives that can push knowledge sharing. Nevertheless, organizational barriers such as lack of information technology systems, rewards and recognition were identified as main barriers to knowledge sharing compare to individual barriers such as, lack of time, interaction and interpersonal skills.

Whereas, Ardichvili (2008) proposed that the following factors affect individuals' intention to knowledge sharing behaviour: motivational factors (personal benefits, community-related considerations and normative considerations); barriers (interpersonal, procedural, technological and cultural); and enablers (supportive corporate culture, trust and tools). In view of this, to enhance effectiveness in knowledge sharing; institutions such as universities need to investigate factors influencing knowledge sharing within their own context and culture. In this study, Ardichvili (2008) framework to knowledge sharing which involves motivators and barriers as indicators of knowledge sharing is adapted.

Motivational Factors

Motivation has been observed as a necessity for the effective dissemination of knowledge (Amayah, 2013; Ardichvili, 2008).Thus, it is mandatory for progressive institutions to gain a better understanding of factors that encourage the act of knowledge sharing among its employees. In view of this, three categories of motivational factors were proposed to aid employees' willingness to share knowledge: Personal benefits; Team-related benefits; and Institutional Norm. Personal benefits are the direct return that individuals expect to gain from engaging in knowledge sharing (Amayah, 2013; Ardichvili, 2008; Chiu, Hsu and Wang, 2006) because humans' rationality makes them decide mostly when actions seem to be advantageous (Hall, 2001). This was further sub-divided based on the review of literature into:

1. Financial rewards;
2. Intellectual benefits;
3. Better professional reputation; and
4. Progress in Career.

Whereas, team-related benefits refer to individuals' moral obligation that sharing of knowledge will help in advancing the course of his or her team, network, or community. Hence, Ardichvili (2008) framework proposed three team-related benefits that may influence the individual's willingness to knowledge sharing:

1. Aid to building a stronger team;
2. Desire to build strong ties among team members; and
3. Desire to strengthen one's position within the team.

In addition, institutional norms refer to values, principles and cultural norms to which employees are expected to adhere in order to aid knowledge sharing among employees. These common values and shared vision among employees are expected to aid the huge flow of knowledge among individuals within an organisation (Amayah, 2013; Chiu, Hsu and Wang, 2006).

Barriers

Despite the perceived enabling environment created by institutions top management teams and the varying ascribed motivating factors to employees in order to aid and promote knowledge sharing, sometimes; employees tend to hoard knowledge for reasons best known to them. Review of literature has depicted that there are thousands of reasons for knowledge hoarding and most times they are due to several surrounding barriers (both individual and organizational) that have availed themselves to hindering knowledge sharing among people (Bock et al,2005; Riege, 2005; Sandhu, Jain and Ahmad,2011). Riege (2005) postulated three-dozens of factors comprising of individual, organizational and technological serving as a hindrance to knowledge sharing.

The review serves as a discovery for senior managers in identifying bottlenecks to knowledge sharing and aid to inculcating improvement techniques to knowledge sharing. Likewise, Sandhu, Jain and Ahmad (2011) examined and found that factors such as, lack of information technology systems, rewards and recognition were main organizational barriers to knowledge sharing compare to individual barriers such as lack of time, interaction and interpersonal skills. Altogether, to aid effective dissemination of knowledge and its management, barriers such as lack of trust, rewards, recognition, among others need to be vastly prohibited.

In this study, barriers to knowledge sharing are categorized into both individual and organisational inclined factors. Individual factors entail knowledge sharing hindrances posit by individual employees of organisations. They include cultural differences, fear of loss of knowledge power, knowledge hoarding culture, lack of communication skills and lack of trust and time (Riege, 2005; Sandhu, Jain and Ahmad, 2011). Communication skills have been reviewed as one of the prominent ability needed by employees to aid knowledge sharing. It entails the ability to disseminate clear and concise information through verbal and non-verbal means in order to aid effective communication (Davenport and Prusak, 1998). Moreover, employees' personalities (introvert or extrovert) and their ability to interact with others also determined level of knowledge sharing (Riege, 2005). In addition, trust and time has also been highlighted by researchers as important factors to knowledge sharing. Trust implies a degree of belief in good intentions, benevolence, competence and reliability of members who share knowledge (Cheng and Hung, 2010).

Moreover, organizational barriers are hindrances instigated from the institutions. They include work politics, lack of knowledge sharing strategies, loose and weak institutional structure and unhealthy rivalry among institution's units which also affect knowledge sharing at a varying extent.

Analytic Network Process

The Analytic Network Process (ANP) is an improved and generalized form of Analytic Hierarchy Process (AHP) proposed in 1996 by Thomas Saaty. It is a comprehensive multi-attribute decision-making technique utilised for societal, governmental and corporate decisions problem analysis such as knowledge sharing determinants in academic institutions (Saaty, 2008). As an expansion to AHP, it helps in modelling complex environmental situations involving risk and uncertainty and to incorporates both interaction and feedback within elements in a cluster (inner dependence) and between clusters (outer dependence) as perceived by decision-makers (Saaty, 1996).

In view of this, ANP as a holistic method of decision analysis inculcates a network structure unlike AHP for flexible interaction of elements without major concern about priority order. It serves as a valuable aid for decision-making involving both tangible and intangible attributes. Furthermore, ANP is a coupling of two parts, of which the first consists of a control hierarchy or network of criteria and sub-criteria that controls the interactions, while the second part is a network of influences among the elements and clusters (Saaty, 2008). It utilizes a supermatrix approach that consists of a two-dimensional element by element matrix which helps in adjusting relative importance weights of individual pair-wise comparison matrices to a more improved overall supermatrix. The relative importance value is derived from the fundamental ratio scale proposed by Saaty (1996) which ranges from 1-9 with 1 representing equal importance and 9 representing extreme importance through pairwise comparison question of 'How much importance/influence does a criterion have compared to other criterion with respect to study's preference'.

ANP technique applications include knowledge management strategies selection, forest management, marketing, medical, political, social, forecasting, prediction, industrial management, asset valuation and many others. Besides, it has been used by Wu and Lee (2007), for knowledge management strategies selection; Cheng and Li (2007), for strategic partnering; Cheng and Li (2004), for contractor selection; Partovi (2006), for facility location problem; and Ravi, Shankar and Tiwari (2005), for end-of-life computers in reverse logistics. As an analytical technique, most of these studies (e.g. Banai, 2010; Ravi, Shankar and Tiwari, 2005) have indicated the effectiveness of the ANP method in their application areas as it allowed for interdependence and interrelationships among the factors and indicators used and further measured dependencies among them. ANP can be used as a tool for making predictions under uncertainty (Banai, 2010, Nekhay, Arriaza and Boerboom, 2009) and have been applied in conjunction with other mathematical modelling techniques (Yang et al, 2008).

MATERIALS AND METHODS

The study was conducted on academic staff within the main campus of the University of Lagos being one of the first generation university with mission and with the aid of Yamane's (1987) random sample size determination method, a sample size of 176 academic staff were generated for the study.

$$n = \frac{N}{\left(1 + N(e)^2\right)} \quad (1)$$

Where, n is the sample size, N is the population size (total number of faculty academia on main campus) and the e is the precision rate.

Therefore, at 7% precision rate and 1265 population size, the sample size can be obtained as:

$$n = \frac{1265}{\left(1 + 1265(0.07)^2\right)} = 175.7$$

In addition, multi stage sampling technique was utilized to allocate samples within academic staff designation in order to generalize representation. Hence, the sample composition is presented in the table 1.

Academic designation	Total number of elements (N_i)	Number of academia in the sample ($n_i = n \cdot \frac{N_i}{N}$), where n is 176, N_i is strata unit, and N is 1265.
Professor	178	25
Associate Professor	85	12
Senior lecturer	279	39
Lecturer I	182	25
Lecturer II	247	34
Assistant Lecturer	162	23
Graduate Assistant	132	18
Total	1265	176

Table 1: Sample composition of academic staff at the University of Lagos (Source: Author's complied, (2018) based on the University human resource management department staff data)

Thus, as the study adopts quantitative and analytical methods with the aid of structured questionnaires in addressing the research problem; the structured questionnaires were designed in ANP format of which each pairwise comparison was being carried out in line with the network structure of the goal, criteria and alternatives. This is to unravel reasons behind knowledge sharing and hoarding and derive scientific conclusions of academic staff judgments. Moreover, content validity of the instrument was conducted by consulting experts in the field such as senior academic staff who have vast experience on the usage of AHP and ANP models. They identified areas for which amendments were accommodated before the main administration of the questionnaires.

The questionnaire is sectionized into two parts, Section A comprising of respondent demographics and Section B containing the ANP based questions for evaluating indicators (motivators and barriers) of knowledge sharing among academic staff. It was designed in close-ended questions format with a response based on Saaty's (2001) fundamental ratio scale in order to identify preference level of elements and criteria in relation to the goal and the alternative from academic staff viewpoints. In addition, research questions were structure based on the available clusters in order to aid easier understanding of factors relationship and responding process.

Altogether, a total of 102 questionnaires were deem fit for analysis out of over 176 questionnaires distributed among the academic staff within the faculties at the University of Lagos. Excel solver (Microsoft excel software) and Super Decisions software (analytic network process model solver) aid the analysis of data. Specifically, the Excel solver was used in aggregating the entire questionnaires data into a unified questionnaire data through the performance of geometric mean. While, the main analytical tool that is, the Super Decisions software was utilized in organizing decision-makers' judgment of pairwise comparison questions to aid effective decisions making. As a multi-criteria decision-making solver, it helps in structuring complex decision problems with multiple conflicting interests into smaller solvable parts based on its flexible nature. In addition, decision problems can be represented in hierarchical and/or network structure and varying interaction among elements such as dependency (inner dependence and outer dependence) and feedback interaction can be fully actualized. This software also helps in checking the consistency of individual respondent judgment on determinants of knowledge sharing and how they reflect on the university missions.

The socio-demographic data gathered in the course of field survey indicated that out of the 102 respondents of the study, 74 of them were males which represent 72.5% of the respondents. In addition, respondents were mainly between the age group of 30-40 years of age which represent 36.3% of the respondents and 41-50 which represent 28.4% of the respondents. Hence, this depicts that most of the respondents are well informed about all the rudiments of knowledge sharing within the institution. While the study incorporates appropriate gender mix.

On the professional designation, there is 37.3% senior lecturer and above while, the remaining percentage is for lecturers below the level. To explicitly disseminate information and ease understanding about the depth of knowledge sharing among academic staff using ANP multi-criteria model, results are presented based on research objective in accordance with the ANP procedure.

According to Saaty (2001), the ANP model comprises the following steps:

1. Identifying the components and elements of the network and their relationships.
2. Conducting pairwise comparisons on the elements.
3. Placing the resulting relative importance weights (eigenvectors) in pairwise comparison matrices within the supermatrix (un-weighted supermatrix).
4. Conducting pairwise comparisons on the clusters.
5. Weighting the blocks of the un-weighted supermatrix, by the corresponding priorities of the clusters, so that it can be column-stochastic (weighted supermatrix).
6. Raising the weighted supermatrix to limiting powers until the weights converge and remain stable (limit supermatrix).
7. Synthesis to obtain final results.

Step I: ANP Model Construction

The model was constructed as a simple network structure which contains 4 clusters (goal cluster, criteria cluster, sub-criteria cluster and the alternative cluster), nodes/elements and links. The goal cluster contains the assessment of knowledge sharing determinants as the goal; the criteria cluster embodies constructs such as the barriers (B) and motivators (M); the primary sub-criteria clusters comprise of individual factors (IND. F.) and organizational factors (ORG. F.) under barriers and institutional norms (IN), personal benefits (PB), team-related benefits (TRB) under motivators.

The secondary sub-criteria cluster contains knowledge hoarding culture (KHC), fear of loss of knowledge power (FLKP), cultural differences (CD), lack of communication skills (LCS) and lack of trust and time (LTT) as components under individual barriers; job politics (JP), loose and weak institutional structure (LWIS), lack of knowledge sharing strategies (LKSS) and unhealthy rivalry among institution's units (URIU) under organizational barriers. For personal benefits, progress in academic career (PAC), peoples' improved opinions about your expertise (PIOE), intellectual benefits (IB) and financial rewards (FR) are its elements; while, desire to strengthen one's position within the team (DSOPT), desire to build strong ties among academic staff (DBSTA) and aid to building stronger team (ABST) are components for team-related benefits; and factors such as institution's principles (IP), institution's culture (IC) and shared vision (SV) were under institutional norm. The observed connectivity within the secondary sub-criteria and the primary sub-criteria help in actualizing the first two research objectives of the study.

Moreover, the alternative clusters comprise of academic-industrial research and development excellence (A-IRDE), quality teaching service delivery (QTSD) and societal innovativeness and entrepreneurial engagement (SIEE). This cluster represents university missions. The study examines the relationship and the depth of influence between the criteria cluster and the alternative cluster thus, the two-headed arrow has shown in figure 1 signifies a feedback relationship between the two clusters as it helps in actualizing the third research objective.

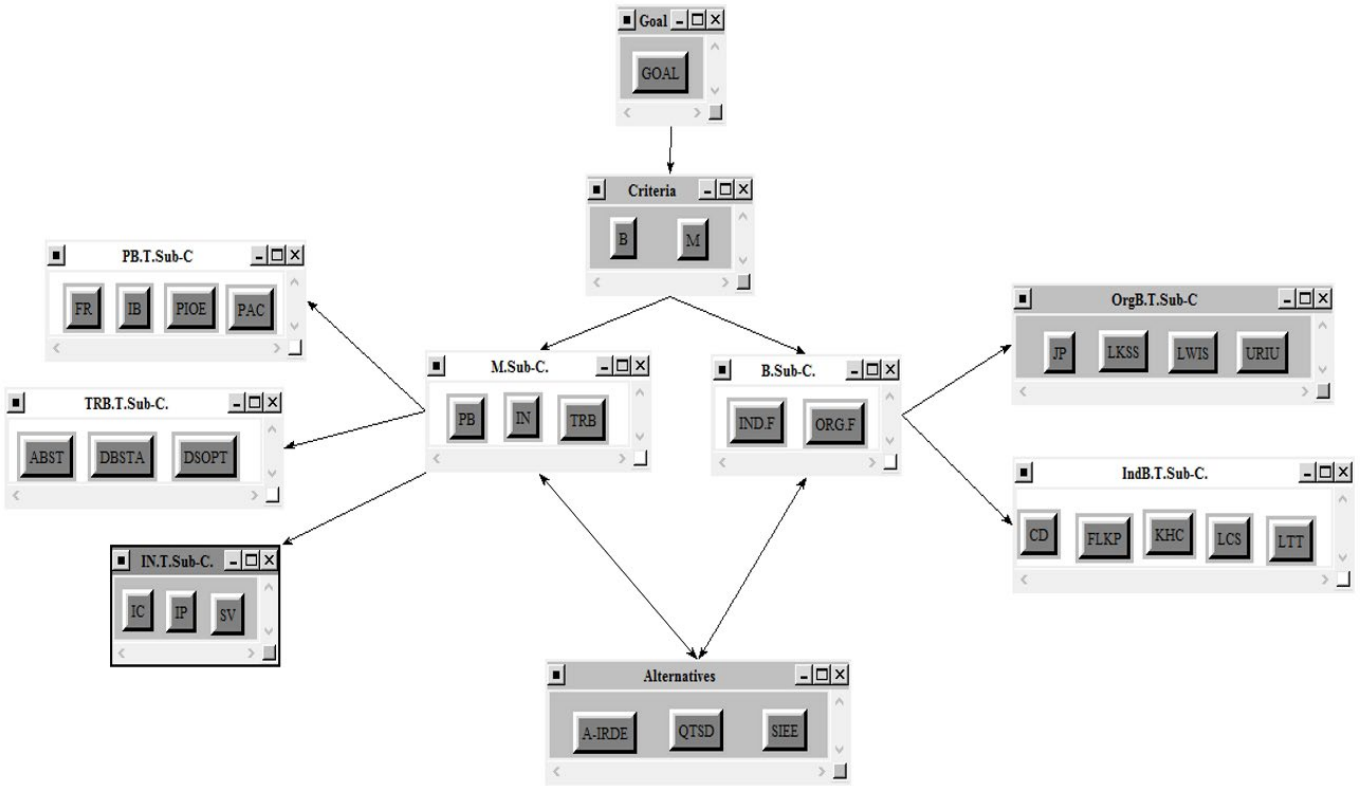

Figure1: ANP model for assessing indicators of knowledge sharing

Factor	Description	References
Barriers		
Individual Factors (IND F)		
Cultural Differences (CD)	Attributed set of values and practices shared by individuals that distinguish them from each other.	Riege (2005); Sandhu, Jain and Ahmad(2011)
Fear of Loss of Knowledge Power (FLKP)	The feelings of losing the attached power of being the sole custody of knowledge.	Ling et al(2007); Riege, (2005); Sandhu, Jain and Ahmad(2011)
Knowledge Hoarding Culture (KHC)	Individualistic attitude and act of being a monopoly of knowledge.	
Lack of Communication Skills (LCS)	Inability to disseminate information either verbally or in written form.	Jain, Sandhu and Sidhu (2007); Riege (2005); Sandhu, Jain and Ahmad(2011)
Lack of Trust and Time (LTT)	Time restriction to share knowledge due to work overload and inability to trust the credibility of people and the source of information	Fauziet al (2018); Jain et al(2007); Ling et al(2007); Riege (2005); Sandhu, Jain and Ahmad(2011)
Organizational Factors (ORG F)		
Job Politics (JP)	When the organizational environment encourages nepotism, slavery among its employees thereby making employees to see themselves has political dogs	
Lack of Knowledge Sharing Strategies (LKSS)	Low or no presence of formal and informal mechanisms to gear up the act of sharing of knowledge among employees	Reige(2005); Sandhu, Jain and Ahmad(2011)
Loose and Weak Institutional Structure (LWIS)	When the organizational structure is either too rigid or flexible and feeble and unfriendly to encourage knowledge sharing.	Amayah (2013); Reige(2005); Sandhu, Jain and Ahmad(2011)
Unhealthy Rivalry among Institution's Units (URIU)	Unwholesome competition amid units (negative organizational climate) within an organization	Riege(2005)
Motivators		
Personal Benefits		
Financial reward (FR)	Monetary reward associated with knowledge sharing amid colleagues	
Intellectual Benefits (IB)	Intellectual capacity building	
Peoples' Improved opinions about your expertise (PIOE)	Desire to share knowledge since it provides positive word of mouth from colleagues.	
Progress in Academic Career (PAC)	This relates to academic promotion and upgrade based on the act of knowledge sharing	
Team Related Benefits (TRB)		
Aid to building stronger team (ABST)	This entails dissemination of knowledge in order to build team intellectual capacity either on a project or not.	
Desire to build strong ties among academic staff (DBSTA)	This focuses on building interpersonal relationship amid a group of individuals	
Desire to strengthen one's position within the team (DSOPT)	This centres on the desire to share knowledge if and only if it builds one's individual desire and statue within the team	
Institutional Norm (IN)		
Institutional Principles (IP)	The act of sharing knowledge because the university obliged members to do so.	
Institution's culture (IC)	Sharing of knowledge as it parts and parcel of being an employee in such institution.	
Shared vision SV)	The act of knowledge sharing as its part of the core value of the institution.	

Table 2: Knowledge sharing determinants

Step II: Pairwise Comparison

Here, the academic staff was asked to respond to the series of pairwise comparison questions representing one criterion against another with respect to a control criterion. This is done to actualize the relative importance of criterion within subdivision of criteria and as determinants towards knowledge sharing. This comparison was done using Saaty's (2001) fundamental scale of 1-9 (see appendix 1) and the model comprises of 19 pairwise matrices for academic staff responses. The individual completed pairwise matrixes are grouped together through the computation of geometric mean across all matrices to derive a unified and centralized pairwise comparison matrix (see Table 4 as an example) for analysis. Afterward, the Super Decisions Software performs automatic consistency measure (see formula 2 and 3) on the pairwise matrix of which only a consistency ratio of less than or equal to 0.10 or 10% is acceptable as suggested by Saaty (2001) but, if Consistency Ratio (CR) is greater than 10%, there will be need to revise the pairwise comparisons either based on the suggestion of the software or the researcher's intuition.

$$CI = \frac{\lambda_{max} - n}{n-1} \quad (2)$$

$$CR = \frac{CI}{RI} \quad (3)$$

Where:
CI is the Consistency Index, *CR* is the Consistency Ratio, λ_{max} is lambda maximum representing the average of the priority of the pair-wise comparison matrix, *n* is the number of classes and *RI* is the Random Index whose *n*-value is depicted in Table 1.

Order (*n*)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49	1.52	1.54	1.56	1.58	1.59

Table 3: Random Index for different values of *n* (Source: Saaty (2008: 129)

From the Table 2, it can be seen that the relative importance of cultural differences (CD) when compared to lack of trust and time (LTT) with respect to individual barriers is approximately 0.88 and that CD has 0.21, the maximum influence in hindering knowledge sharing while Knowledge hoarding culture (KHC) has the minimum influence on knowledge sharing as a barrier. Moreover, the consistency ratio of 0.00442 is acceptable since it is lesser than 10%. Altogether, these pairwise values will be inputted into the Super Decisions software to yield the global priorities for each criterion as they affect knowledge sharing.

Individual Factors Sub-criteria	CD	FLKP	KHC	LCS	LTT	Weight	Consistency ratio
Cultural differences (CD)	1	1.19	1.10	1.03	0.88	0.21	0.00442
Fear of loss of knowledge power (FLKP)	0.84	1	1.08	1.03	0.88	0.19	
Knowledge hoarding culture (KHC)	0.91	0.92	1	1.15	1.06	0.20	
Lack of communication skills (LCS)	0.97	0.97	0.87	1	1.11	0.20	
Lack of trust and time (LTT)	1.14	1.14	0.94	0.90	1	0.20	
TOTAL	4.86	5.23	4.99	5.11	4.93	1.00	

Table 4: Responses towards Individual Factors Sub-criteria (Source: Field survey, 2018)

Step III: Supermatrix Formation

Finally, after obtaining the generic pairwise comparison matrix through the geometric mean computation of individual pairwise comparison matrix, the results are inputted into the matrix format on the Super Decisions software; afterwards the supermatrix (unweighted, weighted and limit) are constructed to yield the relative priority of components within the network system. As a two dimensional matrix of elements to elements, the supermatrix helps in denoting the influence priority of an element at the left corner of the matrix on the element at the top of the matrix with respect to a control criterion.

Therefore, using the Super Decisions software, the unweighted supermatrix (see appendix 2) which contains local weights is first generated after the overall pairwise comparison of the network has been done.

Progressively, the unweighted matrix is multiplied by the cluster matrix to yield weighted supermatrix (see appendix 3). This is to aid column stochastic (that is, each column sum is equal to one) and improvement of measurement.

The output from the weighted supermatrix is raised to powers based on equation (4) until it converges to derive the limit supermatrix (see appendix 4).

$$\lim_{k \to \infty} w^k \qquad (4)$$

The limit supermatrix denotes all available interaction within the network system. Then, the limit supermatrix is normalized to obtain the final priorities.

RESULTS

Findings on Barriers in relation to Knowledge Sharing

Among the selected components of the individual barriers, the result presented inTable 5 depicts a moderately and more equally distributed scores of 21%, 19%, 20%, 20%, 20% for cultural difference, fear of loss of knowledge power, knowledge hoarding culture, lack of communication skills and lack of trust and time respectively.

Individual Factors Sub-criteria	Normalized by Cluster	Limiting
Cultural differences (CD)	0.20681	0.014937
Fear of loss of knowledge power (FLKP)	0.19193	0.013862
Knowledge hoarding culture (KHC)	0.20099	0.014516
Lack of communication skills (LCS)	0.19631	0.014178
Lack of trust and time (LTT)	0.20396	0.014731
TOTAL	**1.00000**	**0.072224**

Table 5: Final Priorities for Individual Factors Sub-criteria (Source: Super Decisions software, 2018)

On the organizational barriers presented to academic staff, job politics possesses the highest hindrance capacity to knowledge sharing among academic staff with 33%, followed by unhealthy rivalry among institution units of 23%, with loose and weak institutional structure and lack of Knowledge Sharing Strategies having 22% and 21% respectively as presented in Table 6.

From this, it can be seen that job politics have hazardous significantly to the intellectual ground of the academic institution. Therefore, job politics contribute negatively to factors promoting knowledge sharing in academic institutions.

Organisational Factors Sub-criteria	Normalized by Cluster	Limiting
Job Politics (JP)	0.32935	0.018489
Lack of Knowledge Strategies (LKSS)	0.21176	0.011888
Loose and weak Institutional Structure (LWIS)	0.22402	0.012576
Unhealthy Rivalry among Institution's Units (URIU)	0.23487	0.013185
TOTAL	**1.00000**	**0.056138**

Table 6: Final Priorities for Organisational Factors Sub-criteria (Source: Super Decisions software, 2018)

Generally, on the hindering factors, individual factors tend to promote academic staff negative behaviour towards sharing of knowledge with 57% compared to 43% of available organizational barriers as presented in Table 7.

Barriers	Normalized by Cluster	Limiting
Individual Factor	0.57295	0.147476
Organisational Factor	0.42705	0.109923
TOTAL	**1.00000**	**0.257399**

Table 7: Final Priorities for Barriers (Source: Super Decisions software, 2018)

Findings on Motivating Factors in relation to Knowledge Sharing

On institutional norm dimensions as presented by Table 8, it was noted that institutional culture was perceived as more importance compared to its pairs. Therefore, it can be said that the organizational culture needs to be strong because it has a stronger influence on the individual employee. While, in relation to personal benefits, the result depicts that peoples improved opinions about one's expertise with 31% tend to effectively drive academic staff willingness to sharing of knowledge compare to intellectual benefits, financial rewards and progress in academic career, whose influence rates are at the percentage of 29%, 22% and 17% respectively. Moreover, systematically it can be interpreted that monetary benefits influence knowledge sharing at 22% rate while non-monetary benefits are at 78%. Academic staff members are likely to share knowledge more where non-financial rewards are attached.

Furthermore, regarding the team related benefits dimension as shown by Table 8, academic staff believed that the aid to building stronger team moderately drives their willingness to sharing of knowledge with 46% compared to the other criterion like "desire to build strong ties among themselves" and "desire to strengthen one's position within the team" whose rates are 31% and 23% respectively. From this, it can be said that team interest dominated personal interest because team interest

possessed the accumulation of 77%. Thus, most academic staff agrees to the Taylors principles of general interest over personal interest which is in line with scientific principles.

Institutional Norm Dimensions	Normalized By Cluster	Limiting
Institution's Culture (IC)	0.37237	0.037696
Institution Principles (IP)	0.34656	0.035083
Shared Vision (SV)	0.28107	0.028454
TOTAL	**1.00000**	**0.101233**
Personal Benefits Dimensions	**Normalized by Cluster**	**Limiting**
Financial Rewards (FR)	0.22464	0.015890
Intellectual Benefits (IB)	0.28898	0.020441
Peoples Improved Opinions about your Expertise (PIOE)	0.31471	0.022261
Progress in Academic Career (PAC)	0.17167	0.012143
TOTAL	**1.00000**	**0.070735**
Team Related Benefit Dimensions	**Normalized by Cluster**	**Limiting**
Aid to Building Stronger Team (ABST)	0.45692	0.032273
Desire to Build Strong Ties among Academic staff (DBSTA)	0.31414	0.022188
Desire to Strengthen One's Position within the Team (DSOPT)	0.22894	0.01617
TOTAL	**1.00000**	**0.070631**

Table 8: Final Priorities for Institutional Norm Dimensions, Personal Benefits Dimensions and Team Related Benefits Dimension (Source: Super Decisions software, 2018)

Altogether, as presented in the Table 9, institution norms have the highest percentage of 42%, followed by personal benefits of 29% and team-related benefits of 29%. Thus, this means that academic staff intention to knowledge sharing is being driven better with the strong institutional norm. The academic institution should develop high ethical norms and guide it always to ensure succession among the generation of academic and promote knowledge sharing for sustaining institutional missions and vision. This does not know that other factors should be neglected since some minority respondents perceived them important but, on an average of 33% they are not that significant within the context of the study.

Motivators	Normalized By Cluster	Limiting
Institutional Norm (IN)	0.41728	0.101233
Personal Benefits (PB)	0.29157	0.070736
Team Related Benefits (TRB)	0.29114	0.070631
TOTAL	**1.00000**	**0.242600**

Table 9: Final Priorities for Motivators (Source: Super Decisions software, 2018)

Findings on Knowledge Sharing Determinants in relation to University Mission

Finally, the overall synthesis table (Table 10) depicts that academic-industrial research and development excellence is more moderately influenced by the presence of determinants to knowledge sharing with 0.44 rating compared to quality teaching service delivery and societal innovativeness and entrepreneurial engagement whose rates are 31% and 25% respectively. That is, the academic-industrial research excellence of academic staff is influenced more irrespective of the observed indicators of knowledge sharing (motivators and or barriers) presence.

Name	Graphic	Ideals	Normals	Raw
A-IRDE		1.000000	0.435726	0.056225
QTSD		0.718962	0.313270	0.040424
SIEE		0.576060	0.251004	0.032389

Table 10: Overall synthesized priorities for the University Mission (Source: Super decision software, 2018)

DISCUSSION OF FINDINGS

The study employed an ANP model for evaluating knowledge sharing determinants among academic staff in the University of Lagos. The determinants comprise of barriers and motivators with varying sub dimensions.

From the data analysis, findings depict that academic staff perceived individual barriers to be more important and critical to knowledge sharing because it promotes negative behaviour towards knowledge sharing as moderate as 57% compared to organizational barriers. But, factors within individual barriers are seen to averagely and slightly preferable as core influential to the willingness to share knowledge. Thus, the prospect of factor such as lack of trust and time within the finding is supported by similar studies conducted in professional virtual communities; Malaysia higher learning institute and ophthalmology hospital where lack of trust was seen as a significant barrier (Ardichvili, 2008; Chen and Hung, 2010; Fauzi et al, 2018; Okoroji, Velu and Sekaran, 2013). Furthermore, the previous study conducted by Sandhu, Jain and Ahmad (2011) discovered that lack of trust was not a critical individual barrier for their respondents (public servants), as it has a lowest score. Contrary to previous studies which found that lack of communication skill and fear of loss of knowledge power were prominent and critical barrier (Riege, 2005; Sandhu, Jain and Ahmad, 2011), it was perceived moderately low with rating of 20% and 19% respectively. While on the organizational barriers, the main barrier is job politics as perceived by academic staff. In the contrary of this finding was a study conducted as comparative research between public and private universities where encouragement of knowledge sharing strategies was proposed due to junior academic staff fear to seek knowledge from senior academic staff (Chong, Yuen and Gan, 2014).

While on motivating dimensions to knowledge sharing, it was found that institutional norm was perceived more critical at 42% compared to personal benefits and team-related benefits. Thus, this means that academic staff intention to knowledge sharing can be better motivated through well-articulated principles, culture and vision statement. However, to improve positive behaviour towards knowledge sharing;

peoples improved opinions about one's expertise, intellectual benefits, financial rewards and progress in academic career are better perceived as a prominent motivator. In support of this, studies conducted on professional virtual community, private university depict a positive relationship between personal benefits (or perceived relative advantage) and knowledge sharing (Ardichvili, 2008;Chong, Yuen and Gan, 2014; Cheng et al, 2008). However, a study conducted on civil servants depicts a negative relationship between personal benefits (intellectual benefits, better professional reputation, emotional benefits, status and career advancement and monetary reward) and knowledge sharing (Amayah, 2013).

While, within the team related benefit dimensions, aid to building stronger team is agreed on to be a critical motivator to influencing willingness to sharing of knowledge with 46% rating compared to the other criterion like "desire to build strong ties among academic staff" and "desire to strengthen one's position within the team" whose rates are 31% and 23% respectively. This result is supported by Amayah (2013) and Ardichvili (2008) studies on the civil servant and virtual communities behaviour towards knowledge sharing respectively. But, on the institutional norm, it was noted that institutional culture possesses a higher influence on knowledge sharing intention to about 37% compared to its pairs.

SUMMARY OF FINDINGS

From the systematic analysis of data, the following findings are highlighted from the study:

1. Among the motivator sub group, institutional norm was identified as an effective factor to drive willingness to knowledge sharing.
2. In addition, respondents believe that in spite of the presence of organizational barriers, individual possessed hindrances such as cultural difference, lack of trust and time, lack of communication skills and natural knowledge hoarding behaviour of academic staff tends to hinder willingness to knowledge sharing.
3. The study also depicts that among the personal benefits, peoples improved opinions about one's expertise and intellectual benefit aid effective drive to knowledge sharing with peoples improved opinions about one's expertise more influential. While, among team-related benefits, the aid to building a stronger team is expected to aid knowledge sharing more compare to other factors. Whereas, within the institutional norms institutional culture was perceived most influential.
4. Furthermore, the study shows that among the individual barriers, cultural differences hinder knowledge sharing slightly more compare to its pairs. Whereas, job politics significantly hinder knowledge sharing more among academic staff compare to its pairs in organizational barriers.
5. Lastly, the study depicts that academic-industrial research and development excellence is more moderately influenced by the determinants of knowledge sharing within the academic institutions.

CONCLUSION

After a rigorous and scientific execution of this study, it can be concluded that:

1. As a group of motivators' institutional norm influences academic staff willingness to knowledge sharing greatly while on a specific ground, the desire to build stronger ties among academic staff strongly drives their intention to share knowledge.
2. On barriers to knowledge sharing, the conclusion is that individual barriers are a stronger group of hindrances to knowledge sharing. While, much attention needs to be placed on cultural difference, lack of trust, time, knowledge sharing strategies and loose and weak institutional structure because they are the main individual barriers identified.
3. Finally, it can be said that to aid the university missions of academic-industrial research and development excellence, quality teaching service delivery and societal innovativeness and entrepreneurial engagement, highlighted motivating factors need to be made available with exception or reduction of hindering factors. Moreover, academic staff needs to be open-minded to knowledge sharing specifically the senior cadre academic staff that seems to be naturally knowledge hoarders and believe in exploitation of the junior cadre academic staff even to the level of filling the questionnaire.

RECOMMENDATIONS

Based on the findings, the following recommendations are proposed:

1. Academic staffs of universities are advised to be unbiased to knowledge sharing acts in order to aid scholarly research and societal development since knowledge hoarding is not the best strategy.
2. It is recommended that in spite of the importance depicted by non-monetary motivating factors like intellectual benefits, progress in the academic career, desire to build stronger ties among academic staff, policymakers need to provide financial rewards to aid knowledge sharing growth among academic staff.
3. Universities are encouraged to consciously and unambiguously minimize job politics, knowledge sharing strategies and associated activities in order to build the mindset of an average researcher, academic staff about the importance of their intellectual property and keeping to institutional mission.
4. Universities reward system should capture extent of knowledge sharing as it has greater influence on actualizing the mission and vision and enhances sustainable competitive advantage.
5. There is a need for an inverse trend in the level of job politics among academia in order to stimulate knowledge sharing that supports university living to its mission.

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APPENDIX

1. Scale for Pair-wise Comparison

Intensity of importance	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
2	Weak or slight	
3	Moderate importance	Experience and judgment slightly favour one activity over another
4	Moderate plus	
5	Strong importance	Experience and judgment strongly favour one activity over another
6	Strong plus	
7	Very strong or demonstrated importance	An activity is favoured very strongly over another; its dominance demonstrated in practice
8	Very, very strong	
9	Extreme importance highest	The evidence favouring one activity over another is of the possible order of affirmation
Reciprocal of the above	If activity *j* as one of the above nonzero numbers assigned to it when compared with activity *j,* the *j* has the reciprocal value when compared with *i*.	A realistic assumption

Source: Saaty (2008: 125)

2. Unweighted supermatrix

		Alternatives			B. Sub-Criteria		Criteria		Goal	IN. Sub-Criteria			Ind. B. Sub-Criteria				
		A-IRDE	QTSD	SIEE	IND.F	ORG.F	B	M	GOAL	IC	IP	SV	CD	FLKP	KHC	LCS	LTT
Alternatives	A-IRDE				0.44	0.43											
	QTSD				0.32	0.31											
	SIEE				0.24	0.26											
B.Sub-C.	IND.F	0.58	0.57	0.56			0.48										
	ORG.F	0.42	0.43	0.44			0.52										
Criteria	B								0.51								
	M								0.49								
Goal	GOAL																
IN. Sub-C.	IC																
	IP																
	SV																
Ind. B Sub-Criteria	CD				0.21												
	FLKP				0.19												
	KHC				0.20												
	LCS				0.20												
	LTT				0.20												
M.Sub-C.	IN	0.41	0.46	0.39				0.39									
	PB	0.27	0.30	0.32				0.25									
	TRB	0.32	0.24	0.30				0.36									
Org. B. Sub-Criteria	JP					0.33											
	LKSS					0.21											
	LWIS					0.22											
	URIU					0.23											
PB.Sub-C	FR																
	IB																
	PAC																
	PIOE																
TRB. Sub-Criteria	ABST																
	DBSTA																
	DSOPT																

Continuation of unweighted supermatrix

		M. Sub-Criteria			OrgB.Sub-Criteria				PB. Sub-Criteria				TRB. Sub-Criteria		
		IN	PB	TRB	JP	LKSS	LWIS	URIU	FR	IB	PAC	PIOE	ABST	DBSTA	DSOPT
Alternatives	A-IRDE	0.41	0.37	0.46											
	QTSD	0.33	0.35	0.28											
	SIEE	0.26	0.28	0.26											
B.Sub-C.	IND.F														
	ORG.F														
Criteria	B														
	M														
Goal	GOAL														
IN. Sub-C.	IC	0.37													
	IP	0.35													
	SV	0.28													
Ind. B.Sub-Criteria	CD														
	FLKP														
	KHC														
	LCS														
	LTT														
M. Sub-Criteria	IN														
	PB														
	TRB														
Org.B.Sub-Criteria	JP														
	LKSS														
	LWIS														
	URIU														
PB. Sub-Criteria	FR		0.22												
	IB		0.29												
	PAC		0.17												
	PIOE		0.31												
TRB. Sub-Criteria	ABST			0.46											
	DBSTA			0.31											
	DSOPT			0.23											

Source: Super Decisions software (2018)

3. Weighted supermatrix

		Alternatives			B. Sub-Criteria		Criteria		Goal	IN. Sub-Criteria			Ind. B. Sub-Criteria				
		A-IRDE	QTSD	SIEE	IND.F	ORG.F	B	M	GOAL	IC	IP	SV	CD	FLKP	KHC	LCS	LTT
Alternatives	A-IRDE				0.22	0.21											
	QTSD				0.16	0.15											
	SIEE				0.12	0.13											
B.Sub-C.	IND.F	0.30	0.29	0.29			0.48										
	ORG.F	0.22	0.22	0.23			0.52										
Criteria	B								0.51								
	M								0.49								
Goal	GOAL																
IN. Sub-C.	IC																
	IP																
	SV																
Ind. B.Sub-Criteria	CD				0.10												
	FLKP				0.09												
	KHC				0.10												
	LCS				0.10												
	LTT				0.10												
M. Sub-Criteria	IN	0.20	0.22	0.19				0.39									
	PB	0.13	0.15	0.15				0.25									
	TRB	0.16	0.12	0.15				0.36									
Org.B.Sub-Criteria	JP					0.17											
	LKSS					0.10											
	LWIS					0.11											
	URIU					0.12											
PB. Sub-Criteria	FR																
	IB																
	PAC																
	PIOE																
TRB. Sub-Criteria	ABST																
	DBSTA																
	DSOPT																

Continuation of weighted supermatrix

		M. Sub-Criteria			OrgB.Sub-Criteria				PB. Sub-Criteria				TRB. Sub-Criteria		
		IN	PB	TRB	JP	LKSS	LWIS	URIU	FR	IB	PAC	PIOE	ABST	DBSTA	DSOPT
Alternatives	A-IRDE														
	QTSD														
	SIEE														
B.Sub-C.	IND.F														
	ORG.F														
Criteria	B														
	M														
Goal	GOAL														
	IC	0.37													
	IP	0.35													
	SV	0.28													
Ind. B.Sub-Criteria	CD														
	FLKP														
	KHC														
	LCS														
	LTT														
M. Sub-Criteria	IN														
	PB														
	TRB														
Org.B.Sub-Criteria	JP														
	LKSS														
	LWIS														
	URIU														
PB. Sub-Criteria	FR		0.22												
	IB		0.29												
	PAC		0.17												
	PIOE		0.31												
TRB. Sub-Criteria	ABST			0.46											
	DBSTA			0.31											
	DSOPT			0.23											

Source: Super Decisions software (2018)

4. Limit supermatrix

		Alternatives			B. Sub-Criteria		Criteria		Goal	IN. Sub-Criteria			Ind. B. Sub-Criteria				
		A-IRDE	QTSD	SIEE	IND.F	ORG.F	B	M	GOAL	IC	IP	SV	CD	FLKP	KHC	LCS	LTT
Alternatives	A-IRDE	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06								
	QTSD	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04								
	SIEE	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03								
B.Sub-C.	IND.F	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15								
	ORG.F	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11								
Criteria	B																
	M																
	GOAL																
	IC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04								
	IP	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04								
	SV	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03								
Ind. B.Sub-Criteria	CD	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
	FLKP	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
	KHC	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
	LCS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
	LTT	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
M. Sub-Criteria	IN	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10								
	PB	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07								
	TRB	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07								
Org.B.Sub-Criteria	JP	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02								
	LKSS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
	LWIS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
	URIU	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
PB. Sub-Criteria	FR	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02								
	IB	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02								
	PAC	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
	PIOE	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02								
TRB. Sub-Criteria	ABST	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03								
	DBSTA	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02								
	DSOPT	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02								

Continuation of limit supermatrix

		M. Sub-Criteria			OrgB.Sub-Criteria				PB. Sub-Criteria				TRB. Sub-Criteria		
		IN	PB	TRB	JP	LKSS	LWIS	URIU	FR	IB	PAC	PIOE	ABST	DBSTA	DSOPT
Alternatives	A-IRDE	0.06	0.06	0.06											
	QTSD	0.04	0.04	0.04											
	SIEE	0.03	0.03	0.03											
B.Sub-C.	IND.F	0.15	0.15	0.15											
	ORG.F	0.11	0.11	0.11											
Criteria	B														
	M														
Goal	GOAL														
IN. Sub-C.	IC	0.04	0.04	0.04											
	IP	0.04	0.04	0.04											
	SV	0.03	0.03	0.03											
Ind. B.Sub-Criteria	CD	0.01	0.01	0.01											
	FLKP	0.01	0.01	0.01											
	KHC	0.01	0.01	0.01											
	LCS	0.01	0.01	0.01											
	LTT	0.01	0.01	0.01											
M. Sub-Criteria	IN	0.10	0.10	0.10											
	PB	0.07	0.07	0.07											
	TRB	0.07	0.07	0.07											
Org.B.Sub-Criteria	JP	0.02	0.02	0.02											
	LKSS	0.01	0.01	0.01											
	LWIS	0.01	0.01	0.01											
	URIU	0.01	0.01	0.01											
PB. Sub-Criteria	FR	0.02	0.02	0.02											
	IB	0.02	0.02	0.02											
	PAC	0.01	0.01	0.01											
	PIOE	0.02	0.02	0.02											
TRB. Sub-Criteria	ABST	0.03	0.03	0.03											
	DBSTA	0.02	0.02	0.02											
	DSOPT	0.02	0.02	0.02											

Source: Super Decisions software (2018)