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Linear Structural Analysis of Media Management Administration, Innovation and Early Childhood Creative Technology Under the Office of the Basic Education Commission in Thailand

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Abstract

The promotion of technological prowess in children at an early age is integral to their creative development and future success. This research studied the relationship between media management administration, innovation, and early childhood creative technology in schools under the Office of the Basic Education Commission in Thailand to validate and confirm the linear relationship between flexibility, motivation, imagination, use of new approaches to problem solving, and vision. Questionnaires from respondents showed that the consistency was between 0.60-1.00, with a reliability of 0.890. Data were analyzed using mean standard deviation, and linear structural analysis and compliance with empirical data was checked based on the harmony index which was then compared to applicable criteria. The major findings show that the composition is in line with the empirical data and demonstrated linear structural relationships between the components of media management administration, innovation and early childhood creative technology.

Keywords: *creative management, early childhood education, innovation and creative technology, linear relationship analysis, media development*

1. Introduction

Advancements in information and communication technology are bringing forth rapid changes in social, economic, political, cultural, and educational contexts. These changes influence everyday life for the individuals of society in both positive and negative ways. For children, who will determine a country's future development, the use of information technology is inevitable, and they must be given the opportunity to learn in an educational system integrating various information technologies to foster familiarity and expertise. Young children are quick to perceive and adopt new things and the Thai government recognizes the benefits technology can bring to early childhood education. Thus, information technology has been incorporated into many of the Thai Ministry of Education's

ISSN 2039-2117 (online)
ISSN 2039-9340 (print)

Mediterranean Journal of
Social Sciences

Vol 9 No 6
November 2018

plans and policies in an attempt to stimulate and support the use of information technology in the development of the country's students for future sustainability and competitiveness. For example, the National Education Act of 1999 encourages all educational institutions to integrate and utilize information technology as a major part of the curriculum in teaching and learning at all levels. Education has a crucial role in the preparation of young people to be quality citizens who can adapt to constantly changing situations and solve unforeseen problems. These young learners must also be able to initiate their own development for the good of their families, community and nation, and advance on the basis of understanding, reason, accuracy, goodness and environmental responsibility (Ministry of Education, 2011).

2. Literature Review

Education in modern times is facing an ever-expanding social context, as collaboration between students in modern times moves beyond not only walls but also borders. Resources beyond physical classrooms and libraries are readily available as technology advances to offer both conveniences and distractions in all aspects of everyday life, and effective education harnesses the benefits of technological advancement to respond to the needs of the learner. The most ubiquitous and useful tool at present, be it for individual study or formal schooling, is the Internet, which has democratized access to information and greatly expedited communication, creating effective and easily upgradeable multimedia educational environments and facilitating communication between a wide range of people by eliminating geographical and distance barriers heretofore impenetrable. Where in the past information needed to be accessed physically through instructors or libraries, the Internet provides an inexhaustible source of information and knowledge pertaining to any topic imaginable, right at the fingertips of the learner through their personal communication devices and has grown to encompass economic change as well, becoming not only a repository of information but also a marketplace for goods and services (Žáčok & Žáčková, 2008). For education to enable students to meet the requirements of contemporary society, it must realize the importance of developing students' skills and competencies for the modern world. In order for educational institutions to flourish, it is necessary for them to adopt new technologies and methods of teaching, with the implementation and application of multimedia teaching materials and information communication technologies key to ensuring that students have the skills necessary to stay abreast of constant change (Baron-Polańczyk, 2008).

Instilling these technological skills in early childhood education has its benefits. Results from a study in Portugal showed that using information technology to help teach children between the ages of 2 to 5 years old motivated them to develop their creativity. It was also found that applying technology to encourage children to interact and learn from each other helped with language development, and their teachers acknowledged that the use of technology as a medium for teaching and learning was essential in today's society (Brito, 2010). Therefore, the management of early childhood education also plays a key role in the development of creativity in learners (Koster, 2001). If the promotion of creativity and imagination is absent at this early stage, children will lack necessary aspects of development and fail to become well-rounded adults able to thrive in modern, technologically centered society (Duffy, 1998), as creativity has been identified as an important characteristic in highly motivated people, reflected by the Thai National Education Program of 2009-2016 (The Secretariat of the Council of Education, 2010) and consistent with Thailand's policy and strategy for early childhood development for children from 0 to 5 years old, which focus on creativity, initiative, and imagination (The Secretariat of the Council of Education, 2007). Creativity and innovation are essential skills for learners in the 21st century, underlined by Albert Einstein, who famously said that "imagination is more important than knowledge." It is necessary to foster creativity in learners at an early age and promote creative thinking with teaching techniques such as brainstorming and invention. Careful analysis and evaluation of these concepts will contribute to the development and refinement of creative work (Henard & McFadyen, 2008).

The rapid evolution of technology has led to a corresponding need for the application of new technologies in education to increase the efficiency of not only teaching but also educational management and involved stakeholders must be ready to accept constant change. Administrators

must analyze the feasibility of using various technologies to maximize the efficiency of their respective institutions to facilitate student learning and comfort. The challenge lies in the attitudes of administrators and their views regarding change and whether they view technology as opportunity or hindrance. It is human nature to be resistant to change. Faced with this age of technology and rapid digital communication challenges especially those whose habits and viewpoints were forged in an analog era and who must now adapt to this new style of instant communication and technological application to even the most mundane tasks. Realizing the effectiveness of modern communication will result in increased and improved cooperation and is the heart of modern day administration. It is important that leaders focus on how to communicate, understand the value and role of positive energy in work, are connected to and open to the thoughts and opinions of their staff, be creative communicators to effectively engage others, and have various techniques for communication to inspire, motivate and engender trust. The mission of modern administrators incorporates dimensions of planning, system restructuring, leadership, monitoring, supervision, and continuous systematic evaluation of information systems that are necessary tools for organizational development. School administrators must be aware of such tools and try to apply them to their institutional processes to improve not only student development and quality, but also that of the teachers and educational personnel involved in the context of the school.

3. Objective

This research aims to study the relationship between linear structures and confirm the relationship linear structural analysis of media management administration, innovation and early childhood creative technology in schools under The Office of the Basic Education Commission in Thailand to conduct the confirmatory factor analysis (CFA) of the linear relationships between media management, innovation and early childhood creative technologies and determine their respective suitability for application in the aforementioned schools for the development of creativity in students and staff. In order to confirm the findings, the variables were clearly observed in order to apply the research results to the management of media, innovation and creative technology at the early stage of education by school administrators to study the relationships of their linear structure and components, with the research hypothesis being that the relationship between the linear and theoretical models is consistent with the empirical data.

4. Conceptual Framework

The conceptual framework for defining media management, innovation, and creative technologies, by studying the concept of creative management, involves both creative characteristics and creative processes. In terms of characteristics that foster creativity in people, it is important that they have initial interest in problems, are willing to accept change, keep abreast of that change, and always gather information and learn from the direct sources. Creative people are those who seek out ways to solve problems, fit both physically and mentally and are cognizant and accepting of the atmosphere and environment that affect their creativity (Phanmanee, 2014). In terms of process, creative people will work diligently and continuously to develop their ideas and to consistently compose their thoughts in a gradual and systemic way. Creativity does not necessarily come immediately, but will oftentimes develop over time and enable the finding of new approaches and achievement of goals through innovation, originality, fluency, and flexibility (Sangaraj, 2013). Creativity is an all-embracing experience to create new models, ideas or products and consists of fact-finding, problem-finding, ideal-Finding, solution-finding, and acceptance-finding (Isaksen et al., 2011) and creative management encompasses five components: flexibility, vision, imagination, motivation and new approaches to problem solving (Torrance, 1972), as illustrated in Figure 1.
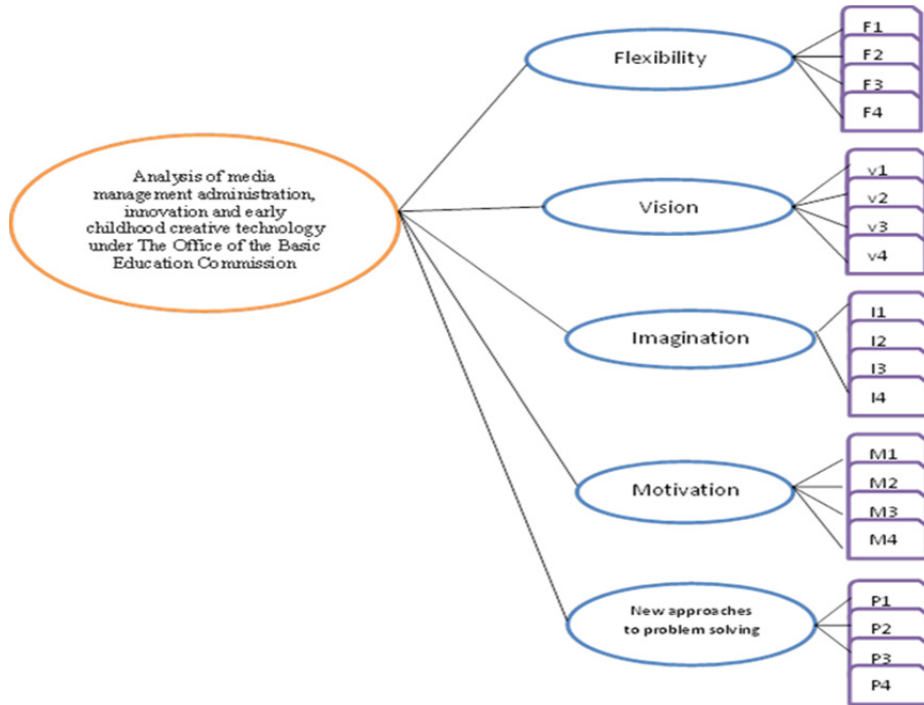
Figure 1. Conceptual framework for media management administration, innovation and early childhood creative technology under the Office of the Basic Education Commission in Thailand

5. Methodology

The population consisted of 5424 early childhood educational institution personnel, with the sample being 350 administrators and teachers from these early childhood educational institutions following the criteria of Hair et al. (2010) and using a multi-step random method.

The variables used in the study in relation to media management, innovation and early childhood creative technology included flexibility, vision, imagination, motivation and new approaches to problem solving.

The instrument used for data collection was a five-point scale questionnaire divided into two parts. The first part covered the general information of the respondents, and the second part asked for opinion concerning management behaviors in terms of media management, innovation and early childhood creative technology as well as their perceived effects on the success. The consistency index is between 0.60 and 1.00, with the reliability of the alpha coefficient with Cronbach's Alpha Coefficient at 0.890. 324 questionnaires were received back from respondents, accounting for 92.57 percent of the 350 distributed. Data analysis utilized mean standard deviation, distribution coefficient, and confirmatory factor analysis to verify the consistency of empirical data

6. Results

From the analysis of data obtained from the linear structural analysis of media management administration, innovation and early childhood creative technology in schools under The Office of the Basic Education Commission in Thailand, the frequency analysis and percentage of baseline data from 324 administrators and teachers from early childhood educational institutions showed that 39.5 percent were male and 60.5 percent female. 74.10 percent of respondents were school

administrators and 25.9 percent were early childhood teachers. 18.2 percent of respondents had a bachelor's degree, 71.6 percent had a master's degree, and 10.2 percent had a doctoral degree, with 24.4 percent from small-sized schools, 49.1 percent from medium-sized schools, 18.5 percent from large-sized schools, and 8.0 percent from very large-sized schools.

Table 1. Results of the linear relationship analysis of components of media management administration, innovation and early childhood creative technology under the Office of the Basic Education Commission in Thailand

Variables	$\bar{x}$ SD CV	Weight of element management administration, innovation and early childhood creative technology			
		ML	SE	T	r^2
First Confirmation Analysis					
Flexibility components: F					
d1 Administrator encourages media development	4.50 0.65 14.0	0.49	-	-	0.57
d2 Administrator gives the opportunity to participate	4.50 0.62 13.0	0.51	0.03	16.07	0.67
d3 Administrator is open-minded	4.58 0.63 13.0	0.50	0.03	15.56	0.64
d4 Administrator adapts properly	4.52 0.62 13.0	0.52	0.03	16.43	0.70
Vision components: V					
d5 Defining the future	4.48 0.64 14.0	0.56	-	-	0.76
d6 Situational analysis	4.50 0.64 14.0	0.53	0.03	19.67	0.70
d7 Stimulation to inspiration	4.57 0.63 13.0	0.52	0.03	19.09	0.68
d8 Looks to new approaches	4.47 0.66 14.0	0.58	0.03	18.71	0.78
Imagination components: I					
d9 Promotion of new ideas	4.56 0.59 13.0	0.51	-	-	o.76
d10 Has reliable sources	4.52 0.70 15.0	0.62	0.03	19.96	0.78
d11 Friendly with colleagues	4.51 0.67 14.0	0.51	0.03	16.90	0.59
d12 Applies policy to practice	4.52 0.66 14.0	0.55	0.03	17.43	0.71
motivation components: m					
d13 Counseling and advice	4.56 0.64 14.0	0.53	-	-	0.75
d14 Opportunities to participate	4.53 0.64 14.0	0.53	0.03	19.95	0.69
d15 Provision of convenient facilities	4.55 0.65 14.0	0.59	0.03	23.16	0.82
New approaches to problem solving Components: N					
d16 Uses knowledge to make decisions	4.52 0.62 13.0	0.56	-	-	0.81
d17 Careful in coordination and cooperation	4.47 0.68 15.0	0.61	0.02	24.87	0.81
second Confirmation Analysis					
management administration, innovation and early childhood creative technology					
Flexibility components: F		1.03	0.06	16.31	1.06
Vision components: V		0.93	0.05	17.88	0.87
Imagination components: I		0.96	0.05	18.40	0.92
motivation components: m		0.99	0.05	19.11	0.98
New approaches to problem solving Components: N		0.96	0.05	19.40	0.91
Statistical value	χ^2= 84.77, df= 70, p-value= 0.11028, RMSEA= 0.026, GFI= 0.97, AGFI= 0.93, RMR= 0.0066, NFI= 1.00				

The results of the linear relationship analysis of the components of media management administration, innovation and early childhood creative technology in schools under The Office of the Basic Education Commission, as illustrated in Table 1, show that for flexibility components there are 4 indicators, with the weight value for each indicator being between 0.49-0.52 and reliability between 0.57-0.70 For motivation components, there are 3 indicators, the weight value of each indicator being between 0.53-0.59 and reliability between 0.69-0.82. For imagination components, there are 4 indicators, with the weight value of each indicator being between 0.51-0.62 and reliability between 0.59-0.78. For new approaches to problem solving components, there are 2 indicators, with the weight value of each indicator being between 0.56-0.61 and reliability of 0.81. For vision components, there are 4 indicators, with the weight value of each indicator being between 0.52-0.58 and reliability between 0.68-0.78. The models are consistent with the empirical data based on the following values: χ^2= 84.77, df= 70, p-value= 0.11028, RMSEA= 0.026, GFI= 0.97, AGFI= 0.93, RMR= 0.066, NFI= 1.00, as summarized in Table 2. The summary of model analysis results is shown in Figure 2.

Table 2. Model consistency with empirical data based on values

Index	Criterion	Statistical Value
χ^2	No statistical significance or proportion $\chi^2/$df not more than 2	χ^2 = 84.77, df = 70
GFI	over 0.90	0.97
AGFI	over 0.90	0.93
RMSEA	over 0.08	0.026
RMR	over 0.05	0.0066

Chi-Square=84.77, df=70, P-value=0.11028, RMSEA=0.026
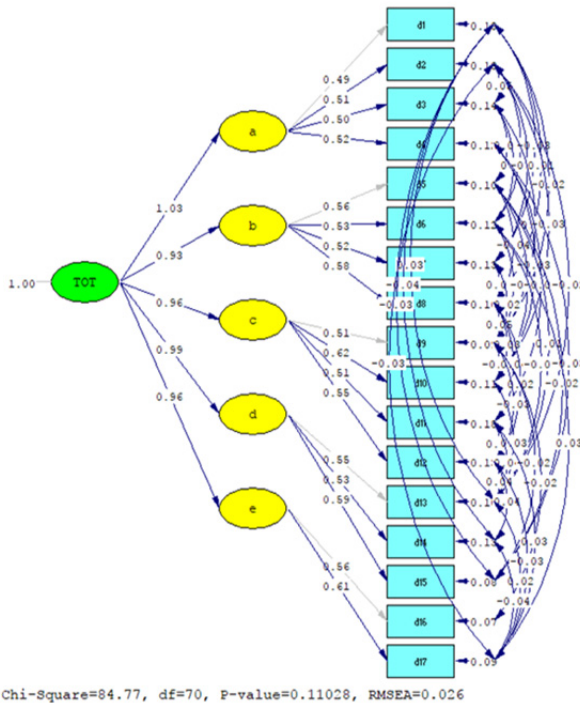
Figure 2. The analysis of data obtained from the linear structural analysis of media management administration, innovation and early childhood creative technology under the Office of the Basic Education Commission in Thailand

7. Discussion and Conclusion

This study investigated the linear structural relationships of the components of media management administration, innovation and early childhood creative technology in schools under The Office of the Basic Education Commission in Thailand. Of the five categories of components, the flexibility components have the highest composition and R2 values, with the next highest being motivation components, followed by imagination components, new approaches to problem solving components and vision components, respectively.

It can be seen that the results of the linear relationship analysis of the components of media management administration, innovation and early childhood creative technology in schools under The Office of the Basic Education Commission in Thailand are in line with the empirical data. Based on the consistency index, χ = 84.77, df= 70, p-value= 0.11028, RMSEA= 0.026, GFI= 0.97, AGFI= 0.93, RMR= 0.066 and NFI= 1.00, with the weight values between 0.93 and 1.03, the confidence values (R2) between 0.87-1.06, the confidence of construct reliability (CR) at 0.99 and the mean

variance of latent variables (AVE) at 0.91.

Research results show a basic relationship between failure and motivation, consistent with Weiner's Causal Attribution Theory which states that people who attribute the root cause of failures to internal and non-controllable factors such as lack of abilities tend to have low motivation to achieve, while people who attribute the root cause of failure to internal and controllable factors such as lack of efforts tend to have high motivation to achieve (Weiner, 1983). In other words, students who consider lack of efforts as the root cause of their failure tend to have higher motivation to achieve their goals after they have failed (Seng, 1990). People who strive for and achieve excellence must have personal vision and intention for excellence, a strong commitment to said vision to achieve success, a commitment to practice their expertise and purposeful analytical thinking (Kaiser, 2000). Academic leaders must have this theoretical understanding and understand the philosophies to be applied in educational institutions to learn how to teach different people in different ways. They must encourage teachers to use innovations and to be good academic role models (Araki, 2000). Considering the confirmation results of the study, it is possible to surmise that learning support offered based on past theory is not adequate and new concepts must be applied to the development of learning programs, such as increasing motivation to learn (Lipnicka, 2008). Educational goals are formulated in accordance with the needs of society and are expressed through the mission and specific functions of educational institutions. From a historical standpoint, they are also derived from scientific results pertaining to gradual understanding of the principles of child development under the influence of various educational situations and circumstances (Krasoń, 2012). The intersemiotic interpretation of text also has a significant influence on the emotional behavior of children. Stimulation of imagination and activity, development of sensitivity to movement and music, and the exploration of the joy of creation are only some of the benefits of classes conducted by means of using intersemiotic strategy (Sirijareun, 2014). In early childhood, in addition to the development of the intellect and the body, there are also the processes of social development and emotional development. Many experts argue that technology is the key to giving young children opportunities to improve their skills in all these areas of development concurrently (Gałązka & Łączyk, 2015). Traditionally, education had centered on the notion of corporality, or rather the physical body, but in a technological society personal expression occurs not just through the body but also through digital and virtual means, challenging the dogmatic perspectives of the analog-era pedagogy typically practiced within the educational process (Stošić, 2015). The presence of educational technology in classrooms is growing and newer generations of children come ready to learn and work with these new technologies. As they play an important role in children's learning and acquisition of various cognitive knowledge, educational technology must be incorporated as a vital part of any future curricula. This application of educational technology will enhance the skills and cognitive characteristics of learners. With the help of new technology, especially the mobile devices becoming undeniably ubiquitous, education can evolve, expand and greatly improve (Koteva-Mojsovska, 2015). While teachers are familiar with the children they teach, this self-organized approach to instruction is not sufficient to create a modern, flexible and individually tailored teaching process, considering the subtlety and complexity of the development of the children as unique individuals. Therefore, efforts and movements towards modernizing the teaching process have yet to achieve the basic postulates of the scientific requirements related to this matter at a high level. Management, knowledge, research and educational proposals are interrelated in the academic and research networks, and through existing and emerging information technologies this knowledge can be applied to meet the aforementioned goals of modernizing education (Valencia & Cázares, 2016). New models of social learning, making use of open educational resources, flexible forms of learning, and dissemination of knowledge through the Internet are becoming more and more effective, available to all learners at different levels of education. In numerous countries, these new modes of education are becoming a new form of learning, being not only supplements to formal education but also developmental factors through concepts such as life-long learning and auto-education which foster the functional skills in learners required by dynamically evolving labor markets. Therefore, the social model of learning, which makes use of the resources and services available on the Internet, is becoming a requirement for modern civilization as an indicator of contemporary education (Weiner, 1983).

8. Recommendation

This study investigated linear structural relationships of the components of media management administration, innovation and early childhood creative technology. Educational administrators should apply the research results to the management of innovative media and creative educational technologies in primary and secondary education to improve and develop the quality of education.

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