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## RESEARCH ARTICLE

### COMPARISON OF ACADEMIC MOTIVATION ON BLENDED LEARNING BASED ON STUDENTS' LEARNING STYLES

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#### ABSTRACT

The teaching and learning environment is employing blended learning. This comparative research surveyed 240 students on their preferred learning style using Kolb's questionnaire and their academic motivation on blended learning. The results revealed majority of students are reflectors ( $n = 184$ , 76.7%), while others' preferred learning styles follows: activist ( $n = 23$ , 9.6%), theorist ( $n = 22$ , 9.2%), and pragmatist ( $n = 11$ , 4.6%). The students' academic motivation shows high extrinsic motivation – identified ( $\bar{x} = 5.03$ ) and moderate motivation in the following areas extrinsic motivation – external regulation ( $\bar{x} = 4.96$ ), intrinsic motivation – to know ( $\bar{x} = 4.85$ ), intrinsic motivation – experience stimulation ( $\bar{x} = 4.67$ ), intrinsic motivation to accomplishment ( $\bar{x} = 4.57$ ), and low amotivation ( $\bar{x} = 2.66$ ). Comparing the data in terms of the students' learnings styles, this study found a significant difference in the extrinsic motivation – identified ( $p < 0.05$ ). However, a post-hoc test did not reveal the dominant learning style. Based the findings of this study, it can be discerned that academic motivation is similar among learning styles employed by the students. Interestingly, internalized extrinsic motivation is a significantly noticeable result that conforms to the ARCS model of motivation. An action plan was developed to address the needs based on the findings of the research.

## INTRODUCTION

The teaching and learning environment is embracing the use of technology through blended learning. This innovative pedagogical approach, which combines face-to-face and online teaching and learning, is being embraced rapidly, but its implementation in developing countries is full of challenges. One big challenge is how users can successfully use the technology and how commitment to participation can be ensured given the participants' different characteristics and encounters with technology (Hofmann, 2014). Hofmann notes that users facing difficulties in technology may result to them abandoning the learning and eventual failure of technological applications. In a report by Oxford Group (2013), some learners (16%) had negative attitudes toward blended learning, while 26% were concerned that learners would not complete their study in blended learning. Learners are important partners in any learning process and, therefore, their backgrounds and characteristics affect their ability to effectively carrying out blended learning. Similarly, the design tools to be used may impinge on the effectiveness of their learning. However, the effectiveness of blended learning may be depend on many other factors, and among them are student characteristics, design features, and learning outcomes. Research shows that the failure of learners to continue their online education in some cases was due to the lack of family support or increased workload leading to learner dropout (Park & Choi, 2009), as well as little time for study.

Additionally, the effectiveness of blended learning depends on learner interactions with instructors since failure to continue with online learning is attributed to this. In Greer, Hudson, and Paugh's study as cited in Park and Choi (2009), family and peer support for learners is important for success in online and face-to-face learning. Support is needed by learners from all areas in web-based courses and this support may be from family, friends, co-workers, and classmates. Greer, Hudson, and Paugh further noted that peer encouragement assisted new learners in computer use and applications. The authors also show that learners need to budget their time, use appropriate technology tools, and get support from friends and family in web-based courses. Peer support is required by learners who have no or little knowledge of technology, especially computers, to help them overcome fears. Park and Choi (2009) showed that organizational support significantly predicts learners' willingness to stay and potential for success in online.

**Background of the Study:** The study by Kintu and Zhu (2016) investigated the possibility of blended learning in a Ugandan University and examined whether student characteristics, such as self-regulation, attitudes towards blended learning, and computer competence, and student background, as in family support, social support and management of workload, were significant factors in learner outcomes (such as motivation, satisfaction, knowledge construction and performance). The characteristics and background factors were studied along with blended learning design features such

as technology quality, learner interactions, and Moodle with its tools and resources.

The findings of said study show that learner attitudes towards blended learning were significant factors to learner satisfaction and motivation, while workload management was a significant factor to learner satisfaction and knowledge construction. Among the blended learning design features, only learner interaction was a significant factor to learner satisfaction and knowledge. Blended learning is gaining popularity in Asia. This paper examines the current stage of development of blended learning in higher education in China, Korea, Japan, and Singapore and the challenges encountered.

### ***Statement of the Problem***

This study aims to determine the relationship between the learning styles of students in HUAIBEI Normal University, Anhui, China and their perceptions towards blended learning of. Specifically, it seeks to answer the following questions:

- What are the preferred learning styles of the college students of HUAIBEI Normal University?
- What is the level of academic motivation of HUAIBEI Normal University students during blended learning?
- Is there any significant difference in HUAIBEI Normal University students' academic motivation based on their learning styles?

### ***Significance of the Study***

The findings of this study will be significant to the following groups in the education sector:

***Curriculum Makers:*** Designers of learning experiences will grasp a better view of the blended learning landscape and will be able to formulate relevant policies, standards, and guidelines in improving the pedagogical experiences of students using the blended learning paradigm.

***ICT Department:*** Persons in-charge of the development, implantation, and maintenance of learning management systems will have a better perspective in terms of designing educational platforms that will serve the different learning needs of different students.

***School Leaders:*** Headmasters and educational supervisors will be able to use the findings of this study to identify effective strategies that will equip their teachers with necessary skills and abilities to function well in blended learning environments

***Students:*** Determining the learning styles relevant to blended learning will be helpful for students in terms of adjusting to new normal education. This adjustment will enable them choose the appropriate learning method that will help them make the most out of the blended learning format.

***Teachers:*** Teachers will benefit as well by identifying students' preferred learning styles in blended learning vis-à-vis academic motivation. It will help educators to be more cognizant of the learning needs of the students in this new setting.

***Scope and Delimitation of the Study:*** This study will analyze the difference in academic motivation towards blended learning based on the learning styles of students in HUAIBEI Normal University in China. The participants in this study were third year Education majors in HUAIBEI Normal University. A total of 240 participants were recruited from 800 students, and they were purposively selected from the population regardless of their gender and assuming all belong to the same age group. Given the limited sample size, this study was unable to represent the characteristics of the entire Chinese academic population. Further, this research also used self-reported survey forms, making its findings highly dependent on the accuracy of the respondents' answers at the time of the survey.

Nonetheless, this study was able to generate valid responses and findings, though the results should not be generalized to other learning institutions.

## **METHODOLOGY**

The study is focused on the students' evaluation of the blended learning approach in terms of their learning styles. Although a qualitative research design can be considered for this study, the researcher opted to quantify the factors of strategies to provide an empirical data set that will reveal the students' perception of the blended learning pedagogy. In view of this, a quantitative research design was used through a comparative research method and descriptive research—specifically fact finding and interpretation. This study recruited third year Education students at Huaibei Normal University (HNU), a comprehensive provincial key university located in Huaibei City, Anhui Province founded in 1974, originally as Huaibei Branch of Anhui Normal University. Recruitment itself was done through stratified random sampling, with samples from all colleges with a small estimate (30%) included. The total student population was 800, broken down per college as follows: engineering, 100 students; architecture, 100 students; primary education, 200 students; physical education, 200 students; and infant school education, 200 students. This research used the Kolb's Learning Questionnaire to determine the respondents' learning styles. The instrument consists of 80 items applicable to youth and adult learners. This questionnaire is designed to find out the preferred learning styles of an adult. Ticking the item that reflects their perspective is equivalent to one point, and adding the ticked items in a combination of questions will determine the preferred learning style. The questionnaire has good reliability and validity indices (Cronbach  $\alpha = 0.78$ ) based on Koob and Funk (2002).

This research used the Academic Motivation Scale (AMS) to assess the students' academic motivation. The AMS is one of the most used instruments to measure the motivation level of students towards learning. Originally, the scale consisted of 28-item seven-point Likert scales. The scale shows a very high level of internal and external consistency in various research, with a Cronbach Alpha of 0.787, which exhibits good internal consistency. The scale measures seven subscales on intrinsic motivation to know and learn, intrinsic motivation towards achievement and accomplishment, intrinsic motivation to experience stimulation and engagement, extrinsic motivation through rewards and constraints, introjected regulation, internalization of extrinsic motives, and amotivation (Vallerand, et al., 1989). The data gathering procedure began with the university's approval to conduct the research. Once the permissions were granted, Kolb's Learning Style Questionnaire were given online to the respondents, and their scores were later on calculated to determine the students' preferred style of learning. Thereafter, the AMS questionnaire was also administered online, and the results were computed as well. Frequency and percentages were used to summarize the demographic composition and the respondents' preferred learning styles. The academic motivation scores were reported using mean and standard deviation. The differences of academic motivation among learning styles was determined using one-way ANOVA and a Tukey post-hoc test was used to further examine the results of the analysis of variance. The statistical software used was SPSS version 22. The level of significance was set as  $\alpha = 0.05$  and referred to as the decision criteria for a significant finding.

## **RESULTS**

Demographic information was collected to describe the respondents' age, sex, year level (in college), and the major they are in. These factors have been identified as the minimum data elements that will provide facts about the students.

**Table 1. Age Distribution of the Respondents**

| Age          | Frequency | Percentage (%) |
|--------------|-----------|----------------|
| 16–18        | 60        | 25             |
| 19–21        | 145       | 60.4           |
| 22 and above | 35        | 14.6           |
| Total        | 240       | 100            |

Table 1 shows the age distribution of the respondents. Majority of the students are aged 19–21 ( $n = 145$ , 60.4%), followed by students aged 16–18 ( $n = 60$ , 25%), and then by students aged 22 and above ( $n = 35$ , 14.6%). This data means the students included in the sample can be considered adult learners.

**Table 2. Sex Distribution of the Respondents**

| Sex    | Frequency | Percentage (%) |
|--------|-----------|----------------|
| Male   | 80        | 33.3           |
| Female | 160       | 66.7           |
| Total  | 240       | 100            |

Table 2 presents the respondents' sex distribution, with majority being female students comprising 66.7% of the sample ( $n = 160$ ). Male students, in contrast, comprised 33.3% ( $n = 80$ ) of the sample.

**Table 3. Year Level Distribution of the Respondents**

| Year Level  | Frequency | Percentage (%) |
|-------------|-----------|----------------|
| First Year  | 86        | 35.8           |
| Second Year | 50        | 20.8           |
| Third Year  | 68        | 28.3           |
| Fourth Year | 36        | 15.0           |
| Total       | 240       | 100.0          |

Table 3 shows the respondents' distribution in terms of their year level. The highest percentage of respondents were first year students ( $n = 86$ , 35.8%), followed by third year students ( $n = 68$ , 28.3%). Second year students were next ( $n = 50$ , 20.8%), followed by fourth year students ( $n = 36$ , 15%).

**Table 4. College Major Distribution of the Respondents**

| College Major           | Frequency | Percentage (%) |
|-------------------------|-----------|----------------|
| Architecture            | 30        | 12.5           |
| Engineering             | 29        | 12.1           |
| Infant School Education | 60        | 25.0           |
| Physical Education      | 61        | 25.4           |
| Primary Education       | 60        | 25.0           |
| Total                   | 240       | 100.0          |

Table 4 presents the respondents' distribution in terms of their college major. Students from physical education, primary education, and infant school education comprise the largest percentage of participants. Students from engineering and architecture comprise the remaining percentage. The students' demographic profile was identified in this section. Since stratified random sampling was employed, it can be seen that the population of the study has been represented properly. This profile can aid in data analysis in terms of the variables of learning styles and academic motivation. The learning styles of the respondents were assessed using Kolb's learning style questionnaire. The individual scores in the questionnaire were summed up, and then the students were categorized as activist, pragmatist, reflector, or theorist based on their score.

**Table 5. Learning Styles of the Respondents**

| Learning Style | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| Activist       | 23        | 9.6            |
| Pragmatist     | 11        | 4.6            |
| Reflector      | 184       | 76.7           |
| Theorist       | 22        | 9.2            |
| Total          | 240       | 100.0          |

Table 5 presents the learning styles as found in the survey. The data shows majority of the students use the reflective learning style. Learners who exemplify reflective learning comprise the majority of sample ( $n = 184$ , 76.7%), while theorists comprise the lowest percentage ( $n = 22$ , 9.2%). Motivation in studying was assessed using the academic motivation scale. Table 6 shows the scores collected using the research instrument.

**Table 6. Academic Motivation of the Respondents**

| Factors  | Mean | SD   | Rank | Interpretation      |
|--|------|------|------|---------------------|
| Intrinsic Motivation to Know                   | 4.85 | 1.37 | 3    | Moderate motivation |
| Intrinsic Motivation toward Accomplishment     | 4.57 | 1.44 | 5    | Moderate motivation |
| Intrinsic Motivation to Experience Stimulation | 4.67 | 1.38 | 4    | Moderate motivation |
| Extrinsic Motivation – Identified              | 5.03 | 1.40 | 1    | High motivation     |
| Extrinsic Motivation – Introjected             | 4.63 | 1.46 | 4    | Moderate motivation |
| Extrinsic Motivation – External Regulation     | 4.96 | 1.33 | 2    | Moderate motivation |
| Amotivation                                    | 2.66 | 1.49 | 6    | Low motivation      |

Scale: 0–2.99 low motivation; 3–4.99 moderate motivation; 5–7 high motivation

Table 6 presents the academic motivation of students in the online learning mode. On a scale of 1 to 7, with 7 being the highest, it can be seen that the highest mean in motivation is exhibited by extrinsic motivation – identified ( $\bar{x} = 5.03$ ,  $SD = 1.40$ ), followed by extrinsic motivation – introjected ( $\bar{x} = 4.96$ ,  $SD = 1.33$ ), and intrinsic motivation to know ( $\bar{x} = 4.85$ ,  $SD = 1.37$ ). Fourth in the ranking of motivation factors is intrinsic motivation to experience stimulation ( $\bar{x} = 4.67$ ,  $SD = 1.37$ ); followed by intrinsic motivation toward accomplishment ( $\bar{x} = 4.57$ ,  $SD = 1.44$ ), and amotivation ( $\bar{x} = 2.66$ ,  $SD = 1.49$ ). Data from the academic motivation scale was compared among the respondents' different learning styles.

**Table 7. Comparison of Academic Motivation when Grouped according to Learning Styles**

| Factors  | F    | Sig.  | Decision     |
|--|------|-------|--------------|
| Intrinsic Motivation to Know                   | 1.14 | 0.33  | Accept $H_0$ |
| Intrinsic Motivation toward Accomplishment     | 1.39 | 0.25  | Accept $H_0$ |
| Intrinsic Motivation to Experience Stimulation | 1.38 | 0.25  | Accept $H_0$ |
| Extrinsic Motivation – Identified              | 3.34 | 0.02* | Reject $H_0$ |
| Extrinsic Motivation – Introjected             | 0.78 | 0.51  | Accept $H_0$ |
| Extrinsic Motivation – External Regulation     | 0.77 | 0.51  | Accept $H_0$ |
| Amotivation                                    | 1.56 | 0.20  | Accept $H_0$ |

\*significant at 0.05 level of significance

Table 7 shows the ANOVA result of mean comparisons of academic motivation according to learning styles. It can be seen that most of the results were not significant except for extrinsic motivation – identified. It can be noted that learning styles have a different perception when it comes to identified extrinsic motivation.

**Table 8. Post-Hoc Analysis of Extrinsic Motivation – Identified Among Learning Styles of the Respondents**

| Learning Style | Mean Difference | Sig.  | Decision |              |
|----------------|-----------------|-------|----------|--------------|
| Activist       | Reflector       | -0.67 | 0.13     | Accept $H_0$ |
|                | Theorist        | -0.10 | 0.99     | Accept $H_0$ |
|                | Pragmatist      | 0.16  | 0.99     | Accept $H_0$ |
| Reflector      | Activist        | 0.67  | 0.13     | Accept $H_0$ |
|                | Theorist        | 0.56  | 0.27     | Accept $H_0$ |
|                | Pragmatist      | 0.82  | 0.22     | Accept $H_0$ |
| Theorist       | Activist        | 0.10  | 0.99     | Accept $H_0$ |
|                | Reflector       | -0.56 | 0.27     | Accept $H_0$ |
|                | Pragmatist      | 0.26  | 0.96     | Accept $H_0$ |
| Pragmatist     | Activist        | -0.16 | 0.99     | Accept $H_0$ |
|                | Reflector       | -0.82 | 0.22     | Accept $H_0$ |
|                | Theorist        | -0.26 | 0.97     | Accept $H_0$ |

Table 8 shows the results of Tukey post-hoc test. It can be noticed that the identified extrinsic motivation construct has no significant difference among the learning styles.

## DISCUSSION

The data obtained can be explained by a number of factors. Demographically, the results of learning styles may be due to the profile composition of the respondents. As the students were perceived to be adult learners, they usually employ a reflective learning process that enables them to learn about themselves (Helyer, 2015). Females are known to be reflective learners, as they exhibit internal motivation to pursue and utilize their learning (Khan, Saeed, Yasmeen, Butt, & Khan, 2018). Reflective learning is a process of learning using conscious, intentional reflection. Reflective learning can involve observing and auditing the level of information comprehension while learning. Additionally, this type of learning can include recollection and critical analysis of past experiences. Reflective learning is a form of active learning, where people are engaged and take an increased degree of responsibility during instruction. Reflective learning is also distinct from other types of learning, including physical, aural, social, solitary, and verbal learning, among others. This may be the outcome of the results because the education majors include the aforementioned learning processes. Self-analysis of thoughts, or metacognition, may have been highly practiced due to the demands of the education process of teachers. Vallerand, et al. (1989) noted that external motivation can be ordered in this way: external regulation, introjection, and identification. This means that a student can be motivated externally by rewards and punishments first, then by internalization because of past experiences, and lastly, by identifying an external motivator is an important aspect for academic success. The highest yield of external motivation – identified can be explained by a number of methodical, theoretical, and empirical circumstances. The process of online learning has been conducted for a number of years.

Since the start of the COVID-19 pandemic, schools have adapted online learning mode and is continually doing so. Exercises and asynchronous activities, which are primarily used in online learning, exert some form of external motivation because it imposes upon students deadlines and forces them to comply. With such implementations, it can be deduced that students have developed their identified external motivation because of their prolonged exposure to the use of online learning. The data collected can also be attributed to technology acceptance, as the online learning mode of the students is perceived to be an important tool to pursue their respective degrees (Davis, Bagozzi, and Warsaw, 1992). Lower yields in external motivation can be associated to the demographic variable of year level and age, as younger students are more inclined to see external motivation as external regulations and are is, therefore, yet to be internalized. Educational researchers have posited that presence of internal motivation through a variety of research evidence. Based on literature, a tripartite taxonomy of academic internal motivation constructs were identified—*intrinsic motivation to know, intrinsic motivation towards accomplishment, and intrinsic motivation to experience stimulation*. These constructs are well defined by Vallerand, et al. (1989) and were used to describe intrinsic motivation for learning. The results reflect the respondents' eagerness to learn and explore which is not uncommon in all domains of education and can be observed in almost all disciplines. Principles of adult learning, which is also the demographic composition of the respondents, would connect to the eagerness of the students to learn. They perceive the topics they study as important facets of their education (Kim & Merriam, 2004). Results in other forms of intrinsic motivation are manifestations of differentiations in demographic profiles. Amotivation, a third type of motivational construct, is an ambivalent term that describes whether students are motivated or demotivated. College students are perceived to be amotivated when they do not see the importance of their academic activities to their personal interest. The results show that students do not see online learning as a motivator or demotivator.

They perceive it to be important to learning, most especially in the context of the COVID-19 pandemic. The flexibility offered by online learning offers an opportunity to practice time management skills. Online courses teach students how to manage their time better since

the student bears the responsibility of engaging with the course instead of simply showing up to class on an assigned day and time. As a result, students not only gain knowledge from the coursework, but they also sharpen their time management skills. Technology has been found to be a driver of external motivation. Al-Jarf (2004) found that students performed better in English language classes when they are technologically motivated. Students were eager to use computers and have better scores compared to those who use textbooks alone. These students had improved motivation, high self-esteem, and a purpose for achievement—something the results of this study also reflect. The use of technology had tremendous effects in posting of positive results to the students. The technology was also responsible for students to engage in interactive processes outside of the classroom and the exchange of ideas. Using and incorporating new technology in the classroom will encourage the students to learn English as a second language (Dörnyei & Ushioda, 2009). Furthermore, extrinsic motivation forms the student's soft skills relevant in the completion of academic tasks, thus, making it differentiated among the learning styles that the students employ. These results corroborate previous research (Amrai et al., 2011; Ayub, 2010; Erten, 2014; Trevino & DeFreitas, 2014). Among the constructs of academic motivation, only extrinsic motivation – identified appears different among learning styles. As such, it can be postulated that these students mainly find the motivation to engage in online learning and fulfill academic obligations as an external motivator, similar to eventually finding a job as a teacher in the future. The results confirm a balance of intrinsic and extrinsic motivation to complete assessments and tasks in an online learning environment. Regardless of learning style, students recognized the importance of their studies and enabled them to become self-determined and efficacious to learn in their discipline. Relating the ARCS model of motivation, it can be discerned that blended online learning enables students to engage in learning, helps them appreciate the relevance of the lessons and concepts they are studying, gain confidence in their knowledge and skills thru actual and vicarious online learning experiences, and develop satisfaction in studying. The motivation they gain in online learning consolidates their experiences, ultimately leading to the internalization of extrinsic motivation.

Based on the results of the study, the continuous use of existing technology to improve learning outcomes regardless of learning style is highly recommended. However, it is imperative to improve the existing strategies by identifying new actions in educational key areas. Furthermore, teachers involved must identify the learning styles of students to create effective teaching strategies. The researcher, therefore, suggests the following action plan given how technology integration is an important aspect of pedagogy.

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