

# The Impact of Andragogy on Learning Satisfaction of Graduate Students

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**Abstract** The study of adult learning—*andragogy*—has emerged as a learning framework due to its increasing popularity in the past four decades. Research on *andragogy* has been mostly exploratory till recently, when Lynda Swanson Wilson designed and tested the Adult Learning Principles Design Elements Questionnaire (ALPDEQ) to measure six *andragogy* principles and eight *andragogy* processes (a 77-item instrument). The present study attempts to find the applicability of *andragogy* by testing its principles using the self-developed Perception, Experiences, and Learning Satisfaction of Knowles' *Andragogical Theory Questionnaire* (PELSKATQ) on 91 graduate students from multiple disciplines (Business, Education, Public Health, and Religion) and two programs (Masters and PhD). The findings of this study showed that gender, marital status, program of study, age, field of study, work experience, coursework completion do not influence learning satisfaction of adult learners. We recommend further studies integrating other factors related to adult learning such as teaching and learning strategies, types of classroom interactions, and types of course assignments.

**Keywords:** *andragogy, adult learner, adult education, graduate student, student satisfaction, learner satisfaction, and learning satisfaction*

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## 1. Introduction

The study of adult learning—*andragogy*—has emerged as a learning framework due to its increasing popularity in the past four decades. The exponential increase of and the changes in the adult students' population have greatly swayed a sizeable number of education practitioners towards *andragogy*. Proponents and critics of the *andragogical* teaching and learning model slowly but steadily increase in the debate arena. However, research on *andragogy* has been mostly exploratory till recently (Holton et al., as cited in Caruth [7]). Hence the need to expand the horizon of this educational theory which is gradually gaining ground in research. The present study purposes to elucidate the relationship between learning satisfaction and Knowles' sextuple principles of *andragogy* using the self-developed Perception, Experiences, and Learning Satisfaction of Knowles' *Andragogical Theory Questionnaire* (PELSKATQ) on students of a Philippines-based international graduate school from multiple disciplines (Business, Education, Public Health, and Religion) and two programs (Masters and PhD).

## 2. *Andragogy*: A Definitional, Historical, Theoretical and Contextual Overview

The word *andragogy* stems from the Greek word *andragogos* which means "teaching adults." *Andragogy* is

defined as the art and science of helping adults learn [26]. Reischmann [34] traces the origin of the word *andragogy* with the German teacher Kapp in 1833—a reflection of Plato's philosophy of a lifelong self-directed learning. *Andragogy* was introduced in the USA by Lindeman (as cited in Brookfield [5]). Its modern form bares the stamp of Malcolm Knowles, an American educator who popularized the model especially in the Western hemisphere. Hence, *andragogy* was coined in Europe by Kapp, introduced in America by Lindeman, and popularized in the West by Knowles [11].

Knowles [26] initially based his *andragogical* model on the four pillars: (a) the learner's self-directedness, (b) his or her accumulated and growing experience for learning, (c) his or her readiness to learn, and (d) the educational shift from subject-centeredness to performance-centeredness. Further, he attributed the rise of *andragogy* first, to the adult students' high resistance to pedagogical methods and drop-outs; second, to the fast pace changing society that made new knowledge rapidly irrelevant making the need to learn newer things faster; and third, to the inadequacy between adult-focused and child-based learning characteristics. In a nutshell, for Knowles, *andragogy* is a reaction to the inadequacy of pedagogy for adult learning.

The key tenet of *Andragogy* is that adults and children have different learning traits and characteristics [26]. These differences affect the processes of both the curriculum and the instruction in a significant way [40]. The skillful combination of adult learners' need—the need

do know, self-concept, experiences, readiness to learn, orientation to learning, and motivation have been identified as the adult learners needs—and a variety of teaching strategies—lecture, case studies, educational games, role play, and discussion—significantly enhances learning [32].

Any study on andragogy that does not integrate its larger and immediate contexts lacks a fundamental component. Interestingly, education is the broader context for teaching [37]. Whereas the larger context of andragogy is adult education, the immediate context is adult learning. Adult education—a branch of education—refers to any “practice in which adults engage in systematic and sustained learning activities in order to gain new forms of knowledge, skills, attitudes, or values” ([30], p. 7). The immediate context of andragogy is adult learning or how adult learners acquire, adopt and transform the knowledge, skills, attitudes, or values provided for by the education. In other words, if adult education is what happens to the adult learner, then adult learning is what happens in the adult learner in the framework of adult education.

### 3. Pedagogy Versus Andragogy: The Debate

The word pedagogy derives from the Greek words *paidos* “child” and *ago* “to lead” and literally means “leading the child.” Pedagogy is the science and art of instructing and children with the purpose of making them function adequately in society. Hamilton’s historical survey on schooling in 1989 reached the conclusion that “the day-to-day practices of schooling are deemed to be both socially-constructed and historically-located” (p. 151). What he means is that pedagogy has shaped and has been shaped by both history and society.

According to Knowles [26] the major traits of pedagogy are that, (a) it is teacher-centered meaning that the teacher assumes full responsibility for the teaching and learning process; (b) the learner plays a passive receptive role by being a teacher-dependent personality; (c) the knowledge is built and not used as a resource; (d) learning is subject-oriented; and (e) the learner is externally motivated via rewards and punishments.

There are various views on the relationship between pedagogy and andragogy. The first views andragogy as dichotomous. Knowles ([26], p. 42) first defended that “to speak of ‘the pedagogy of adult education’ is a contradiction in terms” that is intrinsically baseless. He later refined his position by asserting that “andragogy is simply another model of assumptions about learners to be used alongside the pedagogical model of assumptions . . . most useful when seen not as dichotomous but rather as two ends of a spectrum” ([26], p. 43). In an antithetical reaction to Knowles’ view, Hanson posits that andragogy is nothing else but a “normative utopia” based on the facts that Knowles’ assumptions either have not substantiated backing or are ill-informed [17].

The major bones of contention between pedagogists and andragogists appears to be the nature of the student and the role of the teacher in relation to the student in the teaching and learning process. Whereas pedagogy stresses teacher-centeredness, andragogy emphasizes student-centeredness.

According to Marzano [29] the teaching and learning experience is about the collaborative interaction between the teacher-students-content trilogy. This trilogy, proponents of both pedagogy and andragogy seem to miss in their arguments. Hence, it is the eclectic position of this paper that meaningful teaching and learning occurs best in a moderate combination of the pedagogy and andragogy models.

As Jarvis [23] proposes, “there is no *necessary* contradiction between didactic methods and effective learning. However, such methods need to be re-positioned against a global background of change” (p. 88). Further, it is the view of Tight [42] that “any attempt neatly to delimit a field of adult education and training . . . is doomed to failure . . . we might, more positively, argue that it is better to think in terms of an overarching concept such as lifelong education” (p. 71). Therefore, any meaningful teaching and learning experience should integrate both pedagogical and andragogical concepts and methods according to the teaching and learning situation.

So far, this paper has established that pedagogy and andragogy are neither similar, nor antagonistic, nor directly complementary per se. They are rather different approaches to teaching and learning that can be used most efficiently if adapted to a given specific situation. The next step will be to elucidate the concept of heutagogy as it relates to pedagogy and andragogy.

### 4. Critics of Andragogy

Andragogy is not a model that holds universal consensus. The following are a sample of the main criticisms against andragogy:

1. Andragogy tends to be considered as the panacea for adult learning thus facing the danger of becoming a one-size-fits all model [5].
2. Andragogy is not clearly defined as a practice or a theory [30].
3. Andragogy has mainly undergone descriptive research and lacks trained professionals [7].
4. The distinction between child and adult learners is unclear and ambiguous [18].
5. Andragogy poses a serious difficulty in assessment because of its incompatibility with traditional methods of testing [3].
6. Andragogy is oblivious of the social, cultural, and political contexts surrounding adult learning [8].
7. There is a lack of a holistic approach to research in understanding adult learning in distance learning with the key emotional component left out [24].
8. Based on an extensive review of literature, Caruth [7] concluded that though the population of adult students was significantly increasing in colleges and universities, andragogy is not being used, colleges are not prepared to use andragogy, and higher education is missing on andragogical praxis and therefore recommended further empirical research to solidify andragogy.

The criticisms above are genuine and the issues they raise real. The logical conclusion seems to be a complete rejection of this model in education. However, these criticisms serve as an appeal to more in-depth research.

Hence, the need for this study with regards to andragogy and learner satisfaction.

## 5. The Pedagogy-Andragogy-Heutagogy (PAH) Continuum

Andragogy does not stand as an isolated concept by itself. It is part of the Pedagogy-Andragogy-Heutagogy continuum. The following is a description and analysis of this PAH continuum that will help situate andragogy among the larger spectrum of instructional orientations currently available.

Research has shown that pedagogy and andragogy are insufficient to generate the workforce increasingly demanded by a knowledge-based global economy [4]. Continuous learning in the workplace is the foundational trait needed for employment in the knowledge-based economy [31]. Knowledge workers are “more independent” [44] who need a high sense of independence in analyzing and applying information in various situations [33]. Heutagogy—the art and science of self-directed and self-determined learning and an outgrowth of

andragogy [4]—is the response of educators to this fast growing demand by the job market [19].

Whereas pedagogy fostered student dependence and andragogy student self-directedness, heutagogy emphasizes student self-directedness and self-determination. Table 1 is a comparative summary of the Pedagogy-Andragogy-Heutagogy continuum based on different studies [4,10]. This table presents the Pedagogy-Andragogy-Heutagogy as a teacher-centered to student-centered, and teacher-control to student-control continuum. No study on andragogy can claim to be relevant without situating it in the PAH continuum. The PAH is a continuum in the instruction.

A study among ESL adult learners in Turkey demonstrated that ESL adult learners exhibited both pedagogical and andragogical orientations with andragogy having a higher percentage [12]. It can therefore be extrapolated that the PAH continuum is not only in instruction but also in the learner as an individual.

A growing number of studies, theories, and models for andragogy have been recently suggested [9,36]. Andragogy is one of the models of teaching adults. Other models are experiential learning, transformative learning, critical reflection, learning by solving problems [38].

**Table 1. The Pedagogy-Andragogy-Heutagogy (PAH) Continuum**

Aspect	Pedagogy	Andragogy	Heutagogy
Technological Backdrop	Pre Web 1.0	Post Web 1.0 and Pre Web 2.0	Post Web 2.0 and Pre Web 3.0
Locus of Control	Teacher	Teacher-Learner	Learner
Education Sector	Schools	Adult education	Doctoral research
Cognition Level	Cognitive	Meta-cognitive	Epistemic
Developmental Emphasis	Acquisition	Competency	Capability
Instructional Approach	Getting students to acquire prescribed subject matter	Getting students to learn (content)	Getting students to understand how they learn (process)
Knowledge Production	Subject understanding	Process Negotiation	Context shaping
Learner's self-concept	Teacher-dependent	Self-directed	Self-determined
Learner's experience	Little worth	Greatly important	Greatly important

Adapted from [4,35].

## 6. Learning Satisfaction

Learning satisfaction (LS) can be defined as the “emotional affordance” [6] or the “subjective perceptions” of the degree at which students’ learning experiences match students’ learning expectations on a subject or a course [27]. LS embraces the three modes of instruction namely, face-to-face, blended and fully online. The blended and fully online instructional models are the increasing trend at the tertiary level of education [2].

Learning Satisfaction is a multifaceted, complex, but significantly growing theme in the field of education specifically within educational evaluation which integrates a customer approach to education [28]. Factors affecting LS are variously organized but mostly revolve around learner-related, learning environment-related and instructor-related factors [15,27].

A study by Areti and Bosiou-Makridou [1] surveyed a convenience sample of 340 adult students of any distance programme of the Hellenic Open University (HOU) of Greece to determine the main factors contributing to learners’ satisfaction. Results indicated that instructor’s communications, quality of materials, electronic availability and accessibility of study resources, quality of

feedback from the assignments and exams were the highest factors influencing students’ satisfaction.

## 7. Andragogy and Learning Satisfaction: A Brief Overview of the Research

Since its inception in the 19<sup>th</sup> century and its popularization in the 20<sup>th</sup> century, andragogy has undergone timid but significant empirical inquiry by several researchers in various contexts. The following is a non exhaustive overview of the research based publications on andragogy.

Based on a thorough meta-analysis, Taylor and Kroth [41] summarized criticisms of andragogy as its undefined empirical measurability, lack of empirical investigation, questionability as a theory, the unclear meaning of its procedures, its certification issues, its inapplicability to all adult learners hence the need to create an instrument to measure the andragogical assumptions. The instrument will help practitioner assess andragogical learning and scholars assess andragogy in both formal and informal adult learning (p. 9).

Using a mixed method analysis, a study conducted in Pakistan concluded that majority of the 468 participants were satisfied with the andragogical skills of their tutors

[22]. This is a very insightful study on learner's satisfaction of andragogical orientations of their teachers. However, it lacks comprehensiveness as it addressed only one dimension of learner satisfaction. Also, it is done in one setting that makes it difficult to generalize. Therefore, a more comprehensive study on andragogy and learning satisfaction is much needed in order to shape Hussain's conclusions.

Based on a causal-comparative methodology using both quantitative and qualitative survey methods, a study of 1800 adult learners in 542 distant learning enrollments for the 2007 fall in the USA concluded that neither age, nor level of external commitment, nor campus proximity but rather prior experience is the unique significant factor of learners' satisfaction [13]. Ellis' study differed with earlier conclusions by Sorensen because of the specificity of its sample which comprised real adult learners—neither undergraduate nor community college—taking distance learning modality and living in real world and work situations.

The research was based on the assumption of an intrinsic difference between undergraduate and graduate students. Ellis' categorization of adult learners into undergraduate, graduate, and distance learners is significant in the sense that it can direct further studies on the issue of learning satisfaction thus making the present study the more relevant.

Lo [27] studied student satisfaction factors and perceived learning on a sample of 70 out of 114 registered students in a specific blended course in the USA. The study used a 22 questions 5-point Likert scale survey. The study concluded that instructor performance, students' own commitment to learning, and course policies are three key satisfaction factors that predict perceived student learning. Further, the researcher emphasized the necessity for balancing "course designers' perceptions of students' skills and abilities with students' own perceptions of their skills and abilities" in order to improve learning performance of graduate students in American classrooms (p. 52). Though the smallness of the sample and the singleness of the research situation negatively affect the generalizability of the research results, this research can serve as a stepping stone for further research in the area of student satisfaction at the graduate level therefore reinforcing the need for the current study.

Prior to Lo's research, Swan had conducted a study in 2001 using 73 SUNY Learning Network (SLN) online learning courses. Results indicated that 1406 out of the 3800 students enrolled in 264 SLN online courses identified "a clear and consistent course structure, an instructor who interacts frequently and constructively with students and a valued dynamic discussion" ([39], p. 327) as the only three significant factors contributing to the success of online courses. Like the blended modality in Lo's study, the quality of the instructor and of the course structure played a significant role in learner satisfaction in online courses and for that matter among adult graduate learners. Though the significant sample and empirical methodology used in this study heightens its high level of validity and generalizability, its results do not reflect the traditional and blended modalities for adult learning and fail to directly integrate andragogical principles—which are both aspects that the current research targets to integrate.

Kirkman, Coghlin, and Kromrey [25] conducted a study comparing two sections totaling 39 out of 43 adult

graduate learners of traditional with blended classrooms taught by the same instructor. The findings suggested that experience and Internet usage impacted learning satisfaction in web-enhanced classrooms more than in traditional classrooms; and that learning satisfaction was higher among students involved with a web-enhanced course format than for students in a traditional face-to-face course format. Of a particular interest is experience, which has been identified as one of the two key delineators between children and adult learners. Though experience contributes to a better understanding of the relationships between adult learners and learning satisfaction, this research fails to explicitly integrate andragogical components thus making the current study relevant.

A theoretical study by Houde [21] aimed at refuting the assumption that andragogy is an atheoretical model. The researcher hypothesized that andragogy could be validated as a theory by the use of two motivation theories namely, self-determination and socioemotional selectivity. A striking feature in this research is the author's recommendation for the challenging comparative study of content and problem oriented methodologies and the satisfaction of the competency need—a cardinal component of andragogy. The current study suggests taking the challenge further by integrating other andragogical components in a more comprehensive way.

A correlational study of 61 out of 142 adult online learners by Gebara [14] suggested that the relationship between general self-efficacy and learner satisfaction was not significant. This study is a significant contribution to the study of learner satisfaction in the context of adult learning. The self-efficacy variable is not directly linked to the concept of andragogy. Gebara's research, though significant, does not reflect andragogical principles. Hence, a study of the relationship between andragogy and learner satisfaction among graduate student is relevant.

One of the three purposes of a study by Wilson [43] was to scrutinize the impact of teachers' andragogical orientation on student cognitive (learning) and student affective (satisfaction) outcomes in a non-traditional post-secondary graduate context. The participants were students and teachers of either of five MBA accelerated courses. The findings suggested that, whereas "andragogy impacts student satisfaction in a non-traditional education setting" ([43], p. 209), "none of the andragogical constructs were significant predictors of learning" (p. 187). In other words, andragogy influences the affective but not the cognitive dimension. This conclusion is a direct challenge to the whole concept of andragogy which claims to help adults learn better and not merely feel better. Subsequent studies are therefore needed before validating such a finding. According to the previous analysis, the relationship between andragogy and learner satisfaction at the graduate level has not yet been thoroughly researched.

## 8. Andragogy: An Analysis of its Measuring Instruments

So far, there are several instruments that have been developed to measure various aspects of andragogy. Table 2 below chronologically highlights the most significant of those instruments.

**Table 2. List of Instruments Measuring Andragogy**

Year	Name of Instrument	Author	Purpose	Remarks
1975	Educational Orientation Questionnaire (EOQ)	Hadley, Herschel N.	To measure differences in beliefs about pedagogical and andragogical learning strategies amongst adult educators	Failed to validate all the six assumptions of andragogy
1977	Self-Directed Learning Readiness Scale	Guglielmino, Lucy M.	To measure an individual's self-directed learning readiness	Focused on only one of Knowles' six assumptions namely, self-concept
1978	Principles of Adult Learning Scales (PALS)	Conti, Gary A.	To measure adult education practitioners' acceptance of, adherence to, and application of learning principles congruent with collaborative teaching-learning mode	Was validated via factor analysis
1979	Educational Description Questionnaire (EDQ)	Kerwin, Michael	To measure student perceptions of educators' teaching andragogical behaviors	Measured partial dimensions of andragogy
1981	Andragogical Practices Inventory (API)	Suanmali, Chidchong	To measure the level of agreement about andragogical assumptions among leading educators	Limited to leading educators
1982	Student Orientation Questionnaire (SOQ)	Christian, Arthur Carl	To measure student preferences for either andragogical or pedagogical instruction	Fails to validate all dimensions of andragogy
1987	Personal HRD Style Inventory	Knowles, Malcolm S.	To measure andragogical constructs among Human Resource Development practitioners	Was never validated
1989	Instructional Perspective Inventory (IPI)	Henschke, John A.	To measure the beliefs, feelings and behaviors needed by adult educators	Validated in four other studies
2000	Unnamed	Perrin, Allen L.	To examine levels of adults preference of andragogical teachers and levels of relationships between andragogy and adult learning characteristics	Did not have psychometric validity
2005	Modified Instructor Perspective Inventory (MIPI)	Stanton, Charline	To measure the beliefs, feelings and behaviors needed by adult educators	Modified from a 4- to 5-point Likert Scale
2005	Adult Learning Principles Design Elements Questionnaire (ALPDEQ)	Wilson, Lynda Swanson	To measure adult educators' andragogical orientations	Measured five out of six andragogical principles and seven out of eight andragogical processes. Was validated.

Adapted from [43].

The growing availability of instruments to measure the constructs of andragogy in empirical research is a significant step toward its establishment as a viable theory. Table 2 above reveals two striking features which are relevant for this study. First, six instruments focused on adult educators (EOQ, PALS, API, IPI, MIPI, ALPDEQ) and four on adult learners (EDQ, SOQ, Unnamed, SDR). Second, out of the four adult learner oriented instruments, only one—Wilson's ALPDEQ—was connected to the learning satisfaction of adult students. It appears therefore that not many instruments and studies have tackled the relationship between andragogy and learning satisfaction—a gap in research that this study has identified.

## 9. Summary and Statement of the Problem

The review of literature above focused the research conducted and the instruments developed to measure andragogy. Research about the relationship between andragogy and learner satisfaction at the graduate level is insufficient. No such study has so far been conducted except that of Wilson [43]—a study which tied andragogy to learner satisfaction but disconnected it from student learning. This study therefore endeavors to ascertain the relationship between andragogy and learning satisfaction among graduate students in an Asian context using a researcher-developed instrument labeled Perception, Experiences, and Learning Satisfaction of Knowles' Andragogical Theory Questionnaire (PELSKATQ) in order to assess the validity of the andragogical model, knowing that the availability of instruments to measure the constructs of andragogy in empirical research will

strengthen the foundation of andragogy. Predictive research can be completed to study the effect of andragogical practices on learning and student satisfaction outcomes. In the past, andragogy has experienced a lack of empirical tests ([7], p. 32). However, with validated and reliable instruments available to measure the constructs of andragogy, clearer validation of andragogy in higher education is promising (Holton et al., as paraphrased in Caruth [7], p. 32).

## 10. Research Questions

This study unfolds under the following research questions:

1. What is the demographic profile of the student population of the studied school?
2. What is the statistical variance between gender, marital status, and program of study, learning satisfaction and principles of andragogy?
3. What is the statistical variance between age, field of study, work experience, and coursework completion proportion, learning satisfaction and principles of andragogy?

## 11. Hypotheses

This study was guided by the following hypotheses:

1. There is no significant statistical variance between gender, marital status, and program of study, learning satisfaction and principles of andragogy.
2. There is no statistical variance between age, field of study, work experience, and coursework completion proportion, learning satisfaction and principles of andragogy.

## 12. Methodology

This section focuses on sampling, data collection, data analyses, and limitations of the study.

### 12.1. The Respondents

The population of this study consists of students enrolled in graduate programs in the Philippines. The sample of the study comprised students enrolled at an international graduate school in the Philippines. This study used non-probability convenient sampling since the questionnaire was administered online.

### 12.2. Data Collection and Analysis

The study is quantitative, using a correlational research design. The instrument for this study is labeled Perceptions, Experiences, and Learning Satisfaction of Knowles' Andragogical Theory Questionnaire (PELSKATQ). It is a researcher-made survey instrument composed of two main sections: demographics and a 5 Likert-scale questionnaire. The demographics section consists of gender, age, social status, field of study, work experience, current level, student status, and proportion of coursework completed. The 5-point Likert-scale questionnaire [strongly agree/agree/neither agree nor disagree/disagree/strongly disagree] has 28 items measuring students' perceptions, experiences, and satisfaction of andragogical principles. Each item is directly derived from the six principles of andragogy as spelled out by Malcolm Knowles.

The PELSKATQ Face validity (FV) was conducted among three doctoral students and three professors at AIIAS. Content validity (CV) was done with the help of the research advisor and methodologist. Pilot testing was conducted to assess the readability and reliability of the questionnaire. Feedback from FV, CV, and PT was implemented into the instrument giving it its final form.

The pilot testing was completed in two phases. All demographic items were excluded from the Cronbach test because they are not ordinal. Negative items were reverse coded in order to fit the overall responses. First, a 30 items questionnaire was distributed to 16 participants. The Cronbach alpha for these 16 responses was .854 which indicates a high level of internal consistency. Second, two items were eliminated from the 30 because of their redundancy. The revised 28-items questionnaire was distributed among 11 participants. The 11 participants were distributed as follows: 4 females and 7 males; 4 aged 21 to 25 and 7 aged 36 and above; 4 singles and 7 married; 1 in Business, 4 in Education, 1 in Health, and 5 in Religion; 2 Master level students and 9 Doctoral level students; 3 between 0-50% of course completion and 8 between 51-100% of course completion; 2 with now work experience and 9 with at least 1 year of work experience. This distribution is different from the actual study participants. The Cronbach alpha for these 11 responses was .904 which indicates a higher level of internal consistency.

The researcher secured the approval of the Ethics Review Board (ERB) of the school under study in order to ensure the ethicality of the research process and product. A signed Informed Consent Form was provided to ensure each participant's agreeability, honesty, confidentiality, privacy, safety and liberty throughout the research process.

The researcher encoded the questionnaire items in Qualtrics and sent via email to the entire student body. A consent form introduced the online questionnaire. Students responded to the items anonymously directly online. Thorough follow-up was done. The data was regularly checked online and several reminders were systematically sent to secure sufficient responses. The overall number of respondents was 112. After data cleaning, the final number of respondents of this study consisted of 91 (50.5%) students enrolled for a Masters or a PhD program in a Philippine-based graduate school at the time of the research.

The final 28-items PELSKATQ was encoded into the Qualtrics software and distributed electronically to the 180 enrolled students at the time of the study. The total number of enrollees was given by the school registrar. The total number of respondents was 112 students making over 62% of the entire student population.

Items were attributed a 5-point Likert scale from 5 (strongly agree) to 1 (strongly disagree). A high score implied a strong level of prediction of learning satisfaction by andragogy, and a low score represented a weak level of prediction of learning satisfaction by andragogy. With 28 items, the highest score possible was 140, the median 70 and the lowest 28.

Several t-tests were conducted to determine whether there was a statistically significant difference between learning satisfaction and andragogy among the following demographic variables: gender, social status, and current level of study. ANOVA tests were conducted to determine whether there was a significant difference between learning satisfaction and andragogy among the following demographic variables: age, field of study, work experience, and proportion of coursework completed.

### 12.3. Limitations of the Study

Two limitations impacted this study. First, the sample consisted of about 112 international students enrolled in only four fields and two programs in a single international graduate school. Therefore, the results of the study cannot be generalized to all adult learners across disciplines. Second, the reality of andragogical principles in the school under study is only assumed due to the nature of the school and its students. Different results may be reached in a context where andragogy is intentionally implemented in instruction.

## 13. Findings

This study investigated two main research questions. First, what is the statistical variance between gender, marital status, and program of study, learning satisfaction and principles of andragogy? And second, what is the statistical variance between age, field of study, work experience, and coursework completion proportion, learning satisfaction and principles of andragogy? These questions are answered in the next section.

### 13.1. Demographic Profile

The first research question stated, "What is the demographic profile of the student population of the studied school?" In order to answer the question, the

demographic questions were divided into seven section comprising gender, age, marital status, program of study, field of study, work experience, and percentage of coursework completion. The 91 valid responses were distributed as follows:

Males (47.3%) against females (52.7%); 21-30 (39.8%) against 31up (51.2%); Singles (34.4%) against married (63.4%); Masters (62.4%) against Doctorate (37.6%); Business (25.8%) against Education (25.8%), Health (18.3%), and Religion (28.6%); no work experience (21.5%) against 1-16 up (79.5%); and beginning to half course completion (41.9%) against half way to end of course completion (59.1%). Majority of the respondents are female, aged 31 up, in a master's program, with work experience, and towards the end of their coursework. Finally, the respondents were fairly distributed by field of study. With the exception of gender, these are an acceptable reflection of the entire student population of the school at the time of the study.

### 13.2. Students' Perception on Andragogy and Learning Satisfaction by Gender, Marital Status, and Program of Study

The second research question stated, "What is the statistical variance between gender, marital status, and program of study, learning satisfaction and principles of andragogy?" A T-test was ran to compare each of the aforementioned variable with andragogy and learning satisfaction. Table 3 below summarizes the results by sample, mean, standard deviation (SD), t values and p values.

**Table 3. Andragogy and Learning Satisfaction by Gender, Marital Status and Program of Study**

ANDSAT	N	Mean	SD	t	p
<i>Gender</i>					
Male	44	2.2573	.53391	.896	.373
Female	47	2.1690	.38960	.896	.373
<i>Status</i>					
Married	32	2.3222	.43512	1.911	.060
Single	57	2.1359	.46848	1.911	.060
<i>Program</i>					
Masters	57	2.1703	.42156	-1.040	.303
Doctorate	34	2.2810	.52813	-1.040	.303

The 28 items were grouped in one single variable called ANDSAT. ANDSAT measures how much a respondent ascribes his or her learning satisfaction to andragogical principles. According to the Table 3 above, the independent t –tests ran over the data showed no significant statistical difference between groups within each of the three variables namely gender, status, and andragogy and levels of satisfaction. We accept the null hypothesis. Hence, neither gender, nor marital status, nor program of study influence learning satisfaction of adult learners.

It is noteworthy that the p (.060) value for Status is significantly lower than the p (.303) value for Program and Gender. Also, the p (.060) for Status is close to the significant p (.05) for T-tests. A study with a different sampling approach may yield a statistical significance between groups within the variable Status.

### 13.3. Students' Perception on Andragogy and Learning Satisfaction by Age, Field of Study, Work Experience, and Course Completion

The third research question stated, "what is the statistical variance between age, field of study, work experience, and coursework completion proportion, learning satisfaction and principles of andragogy?" One way ANOVAs were ran to compare each of the aforementioned variables with andragogy and learning satisfaction (ANDSAT). Table 4 summarizes the results by sample, mean, standard deviation (SD), F values and p values.

**Table 4. Andragogy and Learning Satisfaction by Age, Field of Study, Work Experience, and Course Completion**

ANDSAT	N	Mean	SD	F	p
<i>Age</i>					
21-25	19	2.2786	.45825		
26-30	17	2.3710	.41646		
31-35	10	2.2629	.40556		
36-40	19	2.0705	.46165		
41 up	26	2.1420	.50983		
Total	91	2.2117	.46449	1.226	.306
<i>Field</i>					
Business	24	2.2649	.42150		
Education	23	2.0803	.35473		
Health	17	2.1687	.41784		
Religion	26	2.2953	.60006		
Total	90	2.2083	.46600	1.041	.379
<i>Experience</i>					
None	20	2.2793	.43655		
1-5 years	22	2.3641	.44472		
6-10 years	12	2.1035	.42867		
11-15 years	19	2.0455	.50583		
16 year up	17	2.1943	.48360		
Total	90	2.2112	.46706	1.49	.212
<i>Completion</i>					
0-25%	24	2.1188	.46493		
26-50%	13	2.2802	.47359		
51-75%	18	2.1919	.35271		
76-100%	36	2.2588	.52360		
Total	91	2.2117	.46449	.540	.656

According to Table 4 above, the one-way ANOVAs ran over the data showed no significant statistical difference between groups within each of the four variables namely age, field of study, work experience, and coursework completion and andragogy and levels of satisfaction. We fail to reject the null hypothesis. Hence, variables of age, field of study, work experience, or coursework completion, do not influence learning satisfaction of adult learners.

## 14. Discussions

The present study yielded several contributions in the area of andragogy and learning satisfaction. First, the review of the literature revealed a lack of empirical research on andragogy as a theory in general and on andragogy and learning satisfaction in particular. Second, the study generated a much needed instrument, the Perception, Experiences, and Learning Satisfaction of Knowles' Andragogical Theory Questionnaire (PELSKATQ), to measure andragogy and learning satisfaction. Third, so

far as we are aware of, this is the first study that attempted to measure andragogy and learning satisfaction both at the tertiary level and also across several disciplines. Therefore, the study advanced knowledge on the topic of investigation by integrating a holistic approach with its key emotional component previously left out [24].

This study highlighted one major finding. The study showed that gender, marital status, program of study, age, field of study, work experience, or coursework completion do not influence learning satisfaction of adult learners. However, this is not an explicit denial of the theory of andragogy and its relationship to learning satisfaction. This finding corroborates what Merriam and Merriam & Caffarella, earlier showed that andragogy is not clearly defined as a practice or a theory and that research on andragogy has so far mainly focused on the descriptive aspect [7].

In fact, the sample mean for Andragogy and Learning Satisfaction ( $M = 2.23$ ,  $SD = .457$ ,  $N = 91$ ) shows that majority of respondents agree that their learning satisfaction is somehow related with andragogy. The inference here is that, though they do not differ by demographics, adult learners overall experience learning satisfaction in an andragogical environment. However, determining the nature and strength of this relationship necessitates another study beyond the scope of this research. Based on the lack of empirical studies on Andragogy in general and Andragogy and learning satisfaction in particular, exploration of other related factors seem necessary in order to clarify the connection between Andragogy and learning satisfaction. We recommend studies integrating factors closely related to adult learning environment such as teaching and learning strategies, types of classroom interactions, and types of course assignments.

A significant limitation of this study is the use of non-probability sampling. Non-probability sampling was chosen because of the time constraints posed on the researcher by the course load. Non-probability sampling reduces generalizability of findings [16]. Further, a study with a different sampling approach may yield a statistical significance between groups within the variable marital status. It is therefore recommended that this study be replicated using pure random sampling.

## 15. Conclusion

Based on the results of this study of andragogy and learning satisfaction of graduate students, it was concluded that gender, marital status, program of study, age, field of study, work experience, or coursework completion do not influence learning satisfaction of adult learners. This conclusion does not directly confirm or revoke andragogy in general and its association with learning satisfaction in particular. We recommend further research in a different context, with a different sampling method, a larger sample, and a using different related factors.

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