DECISION SCIENCES INSTITUTE
Institutional Student Retention Initiatives for Accelerated Programs

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ABSTRACT

With the increasing availability of higher education programs in an Accelerated Learning (AL) format, student retention in these programs has emerged as a topic that needs to be better understood. This study investigated the applicability of The Institutional Action Model (Tinto, 2012a) to AL students. Empirical data were collected and analyzed statistically. Most of the recommended initiatives from the Institutional Action Model are positively perceived by AL students. They are also willing and capable of using most of them. Institutions can use the results of this research to fine-tune their design of student retention initiatives for AL students.

KEYWORDS: Accelerated learning, Student retention, Retention initiatives

INTRODUCTION

Student retention is an important issue in higher education. Among students who took the ACT college readiness assessment between 2006 and 2012, the first-year dropout rate of those who entered a four-year college was about 12% in 2006 and the same in 2012 (Buddin, 2014). "Retention" is the rate at which a higher education institution retains and graduates students who first enter the institution to work toward a credential, such as the desired undergraduate or graduate degree (Tinto, 2012b). Such a student may transfer to this institution with a part of the credential requirements fulfilled or may start from the beginning of the program. Tinto believes that research should focus on implementable and effective retention policies and initiatives that educational institutions can adopt to enhance student retention rates (Tinto, 2012a). He proposed the Institutional Action Model. The recommended retention initiatives (or "programs") are based on actions that are relatively under the control of the higher education institution.

There has been a call to study retention in specific groups of students. The retention of female students, students of color, online students, and non-traditional students have already been studied. To date, there have not been many studies that are focus on students enrolled in

Accelerated Learning (AL) academic programs. Usually (but not necessarily), students in AL programs share many characteristics of non-traditional undergraduate students, though many are graduate students.

Accelerated Learning (AL) is a form of education that enables students to achieve a desired set of learning outcomes in a shorter period of time in comparison to the conventional learning format (Serdyukov, 2008). The total number of contact hours in a course is the same as that of the conventional format. The total duration of a course is shorter (four to six weeks as opposed to fifteen to sixteen weeks). Within an AL course, the material is taught in longer or more frequent sessions. In AL, courses are compressed and intensive (Serdyukov, 2008). Students are expected to be highly motivated and study independently. Time pressure is inevitable. Since the AL format is gaining popularity among higher education institutions, administrators and faculty in higher education need to understand the persistence factors that are specific to this format, so that proper institutional policies and initiatives should be implemented to enhance student retention in this environment.

AL courses can be delivered on-site or online. An on-site program is an academic program where each of its courses is conducted face-to-face in a physical classroom where the instructor and students are physically present. There is a fixed schedule of class meeting times for face-to-face class sessions in a physical classroom. Because the total length of time for an AL course is compressed, the length of each class period is usually much longer than the usual 60 minute or 90 minute class period in traditional university courses. An online program is an academic program where each of its courses is conducted online via an electronic Learning Management System (LMS). In addition, many such online courses also have a virtual classroom in which an instructor can conduct synchronous and recorded lecture sessions. This virtual classroom performs the same function as a gathering place for the instructor and students to be present at the same time. Conducting such synchronous class sessions is not a necessary condition of an online course. Some AL programs are in a hybrid format which is partly face-to-face and partly online.

This study investigated the applicability of The Institutional Model to students enrolled in AL higher education programs, so as to determine which retention initiatives are suitable for students in these programs. While the topic of student retention has been studied for decades, the retention of students enrolled in AL programs in higher education is a relatively new topic.

LITERATURE REVIEW

This section presents a review of literature that focuses on the retention of students in AL programs. There is also past literature on the retention of adult students and the retention of online students. As the topic of this study is students in AL programs, they are not all adult working students, though the vast majority are. Some may be traditional students and some can be international students who are not allowed to work off-campus. Some AL programs are totally on-site. Therefore, literature about the retention of adult students and online students are not reviewed in the context of this research. While the topic of student retention has been studied for years, the topic of student retention in AL programs has only a short research history. One reason for this is that accelerated higher educational programs did not come on the scene until World War II (Serdyukov, 2008).

The bulk of research on accelerated programs or accelerated learning is on accelerated nursing programs. Stewart, Pope, and Hansen (2010) discussed the use of clinical preceptors to

enhance the Accelerated Online Bachelor's to BSN (ACCEL) program in nursing. This paper was not directly related to student retention, but it presented the characteristics of this successful program (a graduation rate of 98.33 percent between October 2004 and October 2006). This nursing program provided an orientation, short online courses, and on-campus intense laboratory and clinical experience sessions. One feature that stood out was its use of the Preceptor Model in which two local experienced nurses acted as the preceptors for a student when the student was performing several hands-on clinical practices. Allen, Van Dyke, and Armstrong (2010) also described a similar accelerated nursing program. Although this work was not directly about retention, it pointed out that hands-on experience was one attribute that makes the program successful. Stuenkel, Nelson, Malloy, and Cohen (2011) discussed the experience of an accelerated BSN program and concludes that offering a stipend to the students to ease their financial burdens contributed to a high retention rate. This study was not based on any formal established theory or model. Rouse and Rooda (2010) reported reasons for attrition from an accelerated baccalaureate nursing program. Among two cohorts of students in the summer of 2006, the attrition rates were 29 percent and 50 percent. The study found that the students were struggling with family issues, the fast pace of the accelerated program, and the difficulty of balancing school, work, and family. Recommendations given included providing a useful orientation to communicate the pace and intensity of the program, asking graduates to share their coping experiences, offering financial advice, and providing information about counseling and stress relief. This investigation was not based on any formally defined theory or model. Driessnack, Mobily, Stineman, Montgomery, Clow, and Eisbach (2011) recommended helping students prioritize knowledge and skills to be learned amidst the vast amount of material covered in a relatively short time frame.

Tatum and Lenel (2012) compared the self-paced teaching method vs. the traditional lecture/discussion method for teaching an accelerated general psychology course. There was no difference between the two when retention was concerned. The theoretical basis of this research was the self-paced learning approach of Keller (1968). This study demonstrated using the self-paced method in an AL course did not affect retention.

THEORETICAL DEVELOPMENT/MODEL

The Institutional Action Model was proposed to analyze student success using factors outside the control of the institution, factors within the control of the institution, and how student success is achieved (Tinto, 2012a). Persistence factors that are individual to each student and, therefore, considered to be outside the control of the institution include those factors in the four boxes outside institutional commitment in Figure 1. They are (a) student's abilities, skills, and level of preparation for higher education, such as academic and social skills, (b) a student's attributes, such as personality, gender, social class, race, and ethnicity, (c) a student's attitudes, values, and knowledge about higher education, such as goals, drive, and motivations, and (d) the external commitments a student has, such as work and family. These factors cannot be easily changed by an institution. This research focused on the conditions that are more under the control of the institution: expectation, support, involvement, and feedback. They are under "Institutional Commitment" in Figure 1. An institution that is committed to student success can design and implement relevant policies, practices, and initiatives to enhance the retention of students by improving these four favorable conditions in the learning environment. Such an environment can enhance the effort that students expend on learning. The more a student learns and succeeds in class after class, the more academic progress a student makes. Such learning and progress contributes to overall student success (Tinto, 2012a).

The first institutional commitment condition for student success is expectation (Tinto, 2012a). Students do best in environments in which clear and consistent expectations are provided. Moreover, students are even more likely to succeed when these clear and consistent expectations are high but still within their capabilities. Expectations can be communicated in concrete ways through orientations as well as formal and informal advising. Receiving useful advising during the entrance time when a student chooses a major or when a student changes majors is particularly important to a student's success.

The second institutional commitment condition for student success is support (Tinto, 2012a). There are three types of support that promote student success: academic, social, and financial. Academic support can be in the form of developmental education courses, tutoring, study groups, and supplemental instruction modules. Social support can be in the form of counseling, mentoring, and ethnic student centers. These centers can provide support for individual students and can act as a safe haven for minority student groups or new students who might feel isolated otherwise. Financial support is mainly in the form of grants and student loans. All such support is most effective when it is relevant to learning, e.g., connected to a particular class a student is taking, and the environment in which learning takes place, e.g., the classroom.

Figure 1: The Institutional Model (Tinto, 2012a)
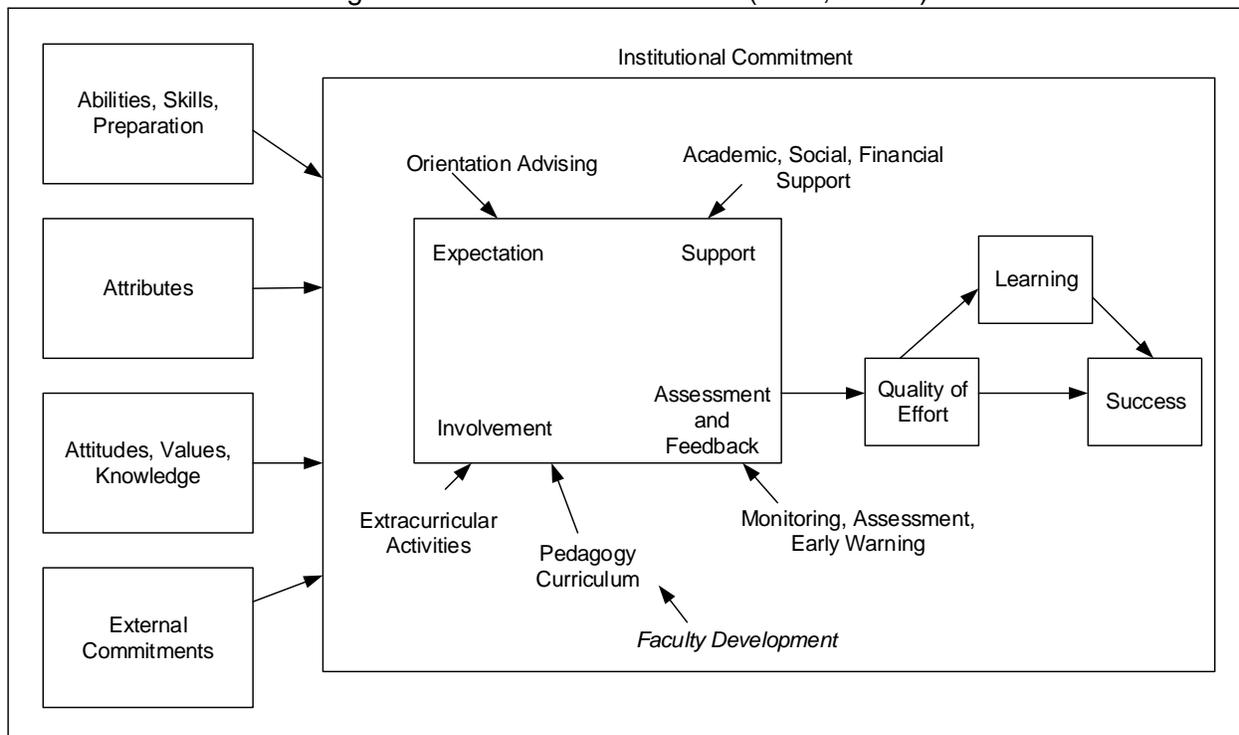
The third institutional commitment condition for student success is assessment and feedback (Tinto, 2012a). Student success is enhanced in an environment in which performance is frequently assessed and the results are provided to faculty, staff, and the students themselves. The monitoring and assessment of student performance and providing of early warning and intervention are actions that an institution can implement.

The fourth institutional commitment condition for student success is involvement (Tinto, 2012a). Involvement is also known as "engagement." Students need to be involved academically and socially for their persistence. Academic involvement can take place in the classroom and can be in the form of building educational communities. In the classroom, there are certain pedagogical strategies that can enhance academic involvement, e.g., collaborative learning, problem-based learning, and project-based learning that require students to work together in teams, service learning that require students to provide service activities to the community and are relevant to classroom learning, and the use of learning communities or cohorts in which the same group of students take the same set of classes throughout and share their experience. The use of appropriate pedagogies for academic involvement should be supported by proper faculty development. Social involvement can be in the form of extracurricular activities.

This research studied various specific institutional retention initiatives derived from the four conditions and general initiatives mentioned in the Institutional Action Model (Tinto, 2012a). Table 1 presents them under each condition. It investigated the perceived usefulness of these initiatives to on-site and online students who are taking AL classes. It also investigated if these students are willing and able to use these retention initiatives. Understanding these issues among this specific group of students can guide higher education institutions in the right direction before they invest resources in creating such initiatives.

Table 1: Institutional Initiatives for the Conditions for Student Success		
Condition		Initiative
Expectation	1.	A university-level orientation, which explains the rules and regulations of the institution, the general expectation of all students, and the culture there.
	2.	A program-level orientation, which explains the program-level skills and expectation of student effort.
	3.	Before each course starts, an email from the instructor, which explains the course-level skills and expectation of student effort in this course.
	4.	Setting high and reasonable expectations and holding all students to these expectations fairly.
	5.	A personal career counseling session to help students understand which career paths are suitable for them before enrolling in a program.
	6.	Assigning a personal mentor (either a faculty member or an alumnus/a) who can answer questions about academic issues and career planning.
Support		
Academic Support	7.	A pre-program assessment to determine whether or not a student would need to improve learning skills or take any preparatory courses to succeed in the chosen program.
	8.	Presenting a clear picture of how the knowledge in different courses of the chosen program fits together in an overall picture in the first course.
	9.	In each course in the program, providing a tutor for asking questions.
	10.	In each course in the program, having a study group available.

	11.	In each course in the program, providing relevant supplemental instruction modules, such as pre-recorded video clips, in addition to the normal class components.
Social Support	12.	Giving students the chance to know the faculty and other students in the program or school socially.
	13.	Giving students the chance to know the faculty and students from their own social/ethnic background socially.
Financial Support	14.	Giving access to more grant or scholarship money for the present education.
	15.	Giving access to more student loans for the present education.
Assessment and Feedback	16.	In addition to the exams in each course, giving constant and informal feedback to inform students and the instructor of the students' learning.
	17.	While students are in the program, getting them and their academic advisors informed early about any additional assistance needed to go forward.
	18.	Students maintaining a learning portfolio that documents their own academic accomplishments for reflection and self-assessment purposes.
Involvement	19.	Involving students in class team projects with other equally contributing students during class time.
	20.	Involving students in class team projects with other equally contributing students outside class time.
	21.	Using cohorts to have students taking courses and interacting with the same cohort all the way through the program.
	22.	While students learn the material in a course, giving them the chance to apply the concepts learned (engage in proper problem-based learning).
	23.	Offering opportunities that give students relevant hands-on work experience, such as an internship or a service learning course.
	24.	Offering opportunities that allow students to join and participate in the student chapter of a professional organization in their field of study.
	25.	Offering opportunities for students to join and participate in an institution/school/program level alumni/ae and student online portal.
	26.	Offering opportunities for students to participate in a student-level contest in their field as an extracurricular activity.
	27.	Offering opportunities for students to attend a regular social gathering, such as an annual local BBQ or a quarterly online lecture series with the faculty, alumni/ae, and students in the school.

Research Questions and Hypotheses

Research Question 1: Which of the institutional initiatives recommended in Tinto's Institutional Action Model (2012a) do students taking on-site and online AL courses perceive to be useful for

enhancing their persistence? Hypotheses H1 through H54 were for answering this research question.

Research Question 2: Which of the institutional initiatives recommended in Tinto's Institutional Action Model (2012a) are students taking on-site and online AL courses willing and able to use? Hypotheses H55 through H86 were for answering this research question.

For each hypothesis tested, the null version proposes neutrality. The opposite of the null version proposes that students are not neutral (positive or negative). The purpose, achieving students' academic goals, is clearly stated in each question in the questionnaire. All hypotheses are listed in Table 2.

Table 2: The List of Hypotheses	
For Research Question 1: Which of the institutional initiatives recommended in Tinto's Institutional Action Model (2012a) do students taking on-site and online AL courses perceive to be useful for enhancing their persistence?	
Initiatives Concerning Expectation (On-Site Students):	
H1	H1: On-site students are neutral about the perceived usefulness of a university-level orientation (Q1).
H2	H2: On-site students are neutral about the perceived usefulness of a program-level orientation (Q3).
H3	H3: On-site students are neutral about the perceived usefulness of getting an email from the instructor at the beginning of each course to explain the course-level skills and expectation of student effort in this course (Q5).
H4	H4: On-site students are neutral about the perceived usefulness of setting high and reasonable expectations and really holding all students to them fairly (Q6).
H5	H5: On-site students are neutral about the perceived usefulness of having a personal career counseling session to help them understand which career paths are suitable before enrolling in a program (Q7).
H6	H6: On-site students are neutral about the perceived usefulness of being assigned a personal mentor (either a faculty member or an alumnus/a) to answer their questions about academic issues and career planning (Q9).
Initiatives Concerning Expectation (Online Students):	
H7	H7: Online students are neutral about the perceived usefulness of a university-level orientation (Q1).
H8	H8: Online students are neutral about the perceived usefulness of a program-level orientation (Q3).
H9	H9: Online students are neutral about the perceived usefulness of getting an email from the instructor at the beginning of each course to explain the course-level skills and expectation of student effort in this course (Q5).
H10	H10: Online students are neutral about the perceived usefulness of setting high and reasonable expectations and really holding all students to them fairly (Q6).
H11	H11: Online students are neutral about the perceived usefulness of having a personal career counseling session to help them understand which career paths are suitable before enrolling in a program (Q7).
H12	H12: Online students are neutral about the perceived usefulness of being assigned a personal mentor (either a faculty member or an alumnus/a) to answer their questions about academic issues and career planning (Q9).

Initiatives Concerning Academic Support (On-Site Students):	
H13	H13: On-site students are neutral about the perceived usefulness of a pre-program assessment to determine whether or not they need to improve their learning skills or take any preparatory courses to succeed in the program (Q11).
H14	H14: On-site students are neutral about the perceived usefulness of getting a clear picture of how the knowledge in different courses of the program fits together in an overall picture in the first course (Q13).
H15	H15: On-site students are neutral about the perceived usefulness of the availability of a tutor in each course in the program (Q14).
H16	H16: On-site students are neutral about the perceived usefulness of the availability of a student study group in each course (Q16).
H17	H17: On-site students are neutral about the perceived usefulness of the availability of relevant supplemental instruction modules, such as pre-recorded video clips, in addition to the normal class components in each course (Q18).
Initiatives Concerning Academic Support (Online Students):	
H18	H18: Online students are neutral about the perceived usefulness of a pre-program assessment to determine whether or not they need to improve their learning skills or take any preparatory courses to succeed in the program (Q11).
H19	H19: Online students are neutral about the perceived usefulness of getting a clear picture of how the knowledge in different courses of the program fits together in an overall picture in the first course (Q13).
H20	H20: Online students are neutral about the perceived usefulness of the availability of a tutor in each course in the program (Q14).
H21	H21: Online students are neutral about the perceived usefulness of the availability of a student study group in each course (Q16).
H22	H22: Online students are neutral about the perceived usefulness of the availability of relevant supplemental instruction modules, such as pre-recorded video clips, in addition to the normal class components in each course (Q18).
Initiatives Concerning Social Support (On-Site Students):	
H23	H23: On-site students are neutral about the perceived usefulness of having the chance to know the faculty and students in their program or school socially (Q20).
H24	H24: On-site students are neutral about the perceived usefulness of having the chance to know the faculty and students from their own social/ethnic background socially (Q21).
Initiatives Concerning Social Support (Online Students):	
H25	H25: Online students are neutral about the perceived usefulness of having the chance to know the faculty and students in their program or school socially (Q20).
H26	H26: Online students are neutral about the perceived usefulness of having the chance to know the faculty and students from their own social/ethnic background socially (Q21).
Initiatives Concerning Financial Support (On-Site Students):	
H27	H27: On-site students are neutral about the perceived usefulness of having access to more grant or scholarship money for their present education (Q22).
H28	H28: On-site students are neutral about the perceived usefulness of having access to more student loans for their present education (Q23).
Initiatives Concerning Financial Support (Online Students):	
H29	H29: Online students are neutral about the perceived usefulness of having access to more grant or scholarship money for their present education (Q22).

H30	H30: Online students are neutral about the perceived usefulness of having access to more student loans for their present education (Q23).
Initiatives Concerning Assessment and Feedback (On-Site Students):	
H31	H31: On-site students are neutral about the perceived usefulness of receiving constant and informal feedback to inform them and the instructor of their learning in addition to the exams in each course (Q25).
H32	H32: On-site students are neutral about the perceived usefulness of them and their advisors being informed early about any additional assistance needed to go forward while they are in the program (Q26).
H33	H33: On-site students are neutral about the perceived usefulness of maintaining a learning portfolio that documents their own academic accomplishments for reflection and self-assessment purposes (Q27).
Initiatives Concerning Assessment and Feedback (Online Students):	
H34	H34: Online students are neutral about the perceived usefulness of receiving constant and informal feedback to inform them and the instructor of their learning in addition to the exams in each course (Q25).
H35	H35: Online students are neutral about the perceived usefulness of them and their advisors being informed early about any additional assistance needed to go forward while they are in the program (Q26).
H36	H36: Online students are neutral about the perceived usefulness of maintaining a learning portfolio that documents their own academic accomplishments for reflection and self-assessment purposes (Q27).
Initiatives Concerning Involvement (On-Site Students):	
H37	H37: On-site students are neutral about the perceived usefulness of being involved in class team projects with other equally contributing students **during** class time (Q29).
H38	H38: On-site students are neutral about the perceived usefulness of being involved in class team projects with other equally contributing students **outside** class time (Q30).
H39	H39: On-site students are neutral about the perceived usefulness of taking courses and interacting with the same classmates (as a cohort) through the entire program (Q32).
H40	H40: On-site students are neutral about the perceived usefulness of having the chance to apply the concepts they have learned (engage in proper problem-based learning) when they learn the material in a course (Q33).
H41	H41: On-site students are neutral about the perceived usefulness of having the opportunity to take a course that gives them relevant hands-on work experience, such as an internship or a service learning course (Q34).
H42	H42: On-site students are neutral about the perceived usefulness of having the opportunity to join and participate in the student chapter of a professional organization in their field of study (Q36).
H43	H43: On-site students are neutral about the perceived usefulness of having the opportunity to join and participate in a university/school/program level alumni/ae and student online portal (Q38).
H44	H44: On-site students are neutral about the perceived usefulness of having the opportunity to participate in a student-level contest in their field as an extracurricular activity (Q40).
H45	H45: On-site students are neutral about the perceived usefulness of attending regular social gatherings, such as an annual local BBQ or a quarterly online lecture series with the faculty, alumni/ae, and students in the school (Q42).
Initiatives Concerning Involvement (Online Students):	
H46	H46: Online students are neutral about the perceived usefulness of being involved in

	class team projects with other equally contributing students **during** class time (Q29).
H47	H47: Online students are neutral about the perceived usefulness of being involved in class team projects with other equally contributing students **outside** class time (Q30).
H48	H48: Online students are neutral about the perceived usefulness of taking courses and interacting with the same classmates (as a cohort) through the entire program (Q32).
H49	H49: Online students are neutral about the perceived usefulness of having the chance to apply the concepts they have learned (engage in proper problem-based learning) when they learn the material in a course (Q33).
H50	H50: Online students are neutral about the perceived usefulness of having the opportunity to take a course that gives them relevant hands-on work experience, such as an internship or a service learning course (Q34).
H51	H51: Online students are neutral about the perceived usefulness of having the opportunity to join and participate in the student chapter of a professional organization in their field of study (Q36).
H52	H52: Online students are neutral about the perceived usefulness of having the opportunity to join and participate in a university/school/program level alumni/ae and student online portal (Q38).
H53	H53: Online students are neutral about the perceived usefulness of having the opportunity to participate in a student-level contest in their field as an extracurricular activity (Q40).
H54	H54: Online students are neutral about the perceived usefulness of attending regular social gatherings, such as an annual local BBQ or a quarterly online lecture series with the faculty, alumni/ae, and students in the school (Q42).
For Research Question 2: Which of the institutional initiatives recommended in Tinto's Institutional Action Model (2012a) are students taking on-site and online AL courses willing and able to use?	
Initiatives Concerning Expectation (On-Site Students)	
H55	H55: On-site students are neutral about being willing or able to go through a university-level orientation (Q2).
H56	H56: On-site students are neutral about being willing or able to go through a program-level orientation (Q4).
H57	H57: On-site students are neutral about being willing or able to attend a personal career counseling session to help them understand which career paths are suitable for them before enrolling in the program (Q8).
H58	H58: On-site students are neutral about being willing or able to be on a voluntary personal mentor-mentee team (the mentor being either a faculty member or an alumnus/a) for them to ask questions about academic issues and career planning (Q10).
Initiatives Concerning Expectation (Online Students):	
H59	H59: Online students are neutral about being willing or able to go through a university-level orientation (Q2).
H60	H60: Online students are neutral about being willing or able to go through a program-level orientation (Q4).
H61	H61: Online students are neutral about being willing or able to attend a personal career counseling session to help them understand which career paths are suitable for them before enrolling in the program (Q8).
H62	H62: Online students are neutral about being willing or able to be on a voluntary personal mentor-mentee team (the mentor being either a faculty member or an alumnus/a) for them to ask questions about academic issues and career planning

	(Q10).
Initiatives Concerning Academic Support (On-Site Students):
H63	H63: On-site students are neutral about being willing or able to go through a pre-program assessment to determine whether or not they need to improve their learning skills and any necessary additional preparatory courses before starting the program (Q12).
H64	H64: On-site students are neutral about being willing or able to contact a tutor for help, if needed. (Q15).
H65	H65: On-site students are neutral about being willing or able to join a voluntary student study group. (Q17).
H66	H66: On-site students are neutral about being willing or able to use relevant supplemental instruction modules, such as pre-recorded video clips, in addition to the normal class components, if needed (Q19).
Initiatives Concerning Academic Support (Online Students):
H67	H67: Online students are neutral about being willing or able to go through a pre-program assessment to determine whether or not they need to improve their learning skills and any necessary additional preparatory courses before starting the program (Q12).
H68	H68: Online students are neutral about being willing or able to contact a tutor for help, if needed. (Q15).
H69	H69: Online students are neutral about being willing or able to join a voluntary student study group. (Q17).
H70	H70: Online students are neutral about being willing or able to use relevant supplemental instruction modules, such as pre-recorded video clips, in addition to the normal class components, if needed (Q19).
Initiatives Concerning Financial Support (On-Site Students):
H71	H71: On-site students are neutral about being willing or able to take on additional student loans to achieve their academic goal, if needed (Q24).
Initiatives Concerning Financial Support (Online Students):
H72	H72: Online students are neutral about being willing or able to take on additional student loans to achieve their academic goal, if needed (Q24).
Initiatives Concerning Assessment and Feedback (On-Site Students):
H73	H73: On-site students are neutral about being willing or able to maintain a learning portfolio that documents their own academic accomplishments for reflection and self-assessment purposes (Q28).
Initiatives Concerning Assessment and Feedback (Online Students):
H74	H74: Online students are neutral about being willing or able to maintain a learning portfolio that documents their own academic accomplishments for reflection and self-assessment purposes (Q28).
Initiatives Concerning Involvement (On-Site Students):
H75	H75: Given a choice between (a) working on a class team project with other equally contributing students outside class time and (b) working on a class project by oneself outside class time, on-site students are neutral about (a) and (b) (Q31).
H76	H76: On-site students are neutral about being willing or able to take a course that gives them relevant hands-on work experience, such as an internship or a service learning course (Q35).
H77	H77: On-site students are neutral about being willing or able to join and participate in a student chapter of a professional organization in their field of study (Q37).
H78	H78: On-site students are neutral about being willing or able to join and participate in a

	university/school/program level alumni/ae and student online portal (Q39).
H79	H79: On-site students are neutral about being willing or able to participate in a student-level contest in their field as an extracurricular activity (Q41).
H80	H80: On-site students are neutral about being willing or able to attend a regular social gathering, such as an annual local BBQ or a quarterly online lecture series with the faculty, alumni/ae, and students in their school (Q43).
Initiatives Concerning Involvement (Online Students):	
H81	H81: Given a choice between (a) working on a class team project with other equally contributing students outside the virtual classroom class time and (b) working on a class project by oneself outside the virtual classroom class time, online students are neutral about (a) and (b) (Q31).
H82	H82: Online students are neutral about being willing or able to take a course that gives them relevant hands-on work experience, such as an internship or a service learning course (Q35).
H83	H83: Online students are neutral about being willing or able to join and participate in the student chapter of a professional organization in their field of study (Q37).
H84	H84: Online students are neutral about being willing or able to join and participate in a university/school/program level alumni/ae and student online portal (Q39).
H85	H85: Online students are neutral about being willing or able to participate in a student-level contest in their field as an extracurricular activity (Q41).
H86	H86: Online students are neutral about being willing or able to attend a regular social gathering, such as an annual local BBQ or a quarterly online lecture series with the faculty, alumni/ae, and students in their school (Q43).

METHODS

Instrumentation

The two versions of the questionnaire used were derived directly from Tinto (2012a). One version was offered to on-site students and the other version was offered to online students. For consistency, the questions in both versions were the same with variations on the words "on-site" or "online," as appropriate. For objective questions, the responses were on a five-point Likert scale, with "Strongly Disagree" (1), "Disagree" (2), "Neutral" (3), "Agree" (4), and "Strongly Agree" (5). There were also open-ended questions to allow the subjects to provide more in-depth information. Questions in the questionnaire were divided into different categories that aligned with the conditions of student success in the Institutional Action Model (Tinto, 2012a) and the hypotheses set up. Both versions of the questionnaire are available upon request from the first author.

Research Steps

This research was a quantitative study with a questionnaire survey and statistical analysis. The major steps in the methodology were as follows:
1.   Formally defining the research hypotheses based on relevant theoretical model
2.   Developing two versions of a questionnaire based on Tinto (2012a), one for students taking an on-site class and one for students taking an online class
3.   Obtaining Institutional Review Board (IRB) approval
4.   Performing a pre-test on each version of the questionnaire with at least two relevant students, to see if any improvement on the questionnaire is necessary

5.   Asking the students (subjects) to voluntarily work on an assignment for bonus points. For this assignment, each subject was given the choice of completing Version A (the questionnaire, on-site or online, as appropriate) and completing Version B (a written assignment about the course learning outcomes of the course he or she was taking)
6.   Performing data cleansing and coding based on the answers of the subjects
7.   Performing a two-tailed z-test statistical test for each hypothesis to determine whether the null version of each one should be rejected or not.

Subjects

A convenience sample of current AL students were used as subjects in this study. Among this sample, there were two groups of students. The first group was composed of students taking an on-site class. The second group was composed of the students taking an online class.

This study used current students enrolled at a private university ("XYZ University" from here onwards) as subjects. In order to be as comprehensive as possible, at least one on-site class and one online class offered by each college or school of XYZ University were included in data collection. XYZ University is an accredited non-profit university based in California. It offers undergraduate and graduate programs in an accelerated format. In this format, classes are conducted in a one-class-per-month approach. Basically, each 4.5 quarter-unit class is four weeks long. A student, who only takes one class each month, takes classes one by one until all the program requirements are fulfilled. A student can take such a class on-site in a physical classroom or online. An on-site undergraduate class meets ten times during its four-week period (two times a week and two weekends). Each class lasts for 4.5 hours. An online class may still have live lecture sessions via a virtual classroom on the Internet. Similar to a traditional class session in a physical classroom, when a virtual lecture session starts, the instructor and all the students log into the same virtual classroom. Teaching and communication are synchronous via headsets and a shared computer application, such as Microsoft PowerPoint. Usually, such synchronous lecture sessions are offered one to two times a week, as decided by the instructor. Students taking an online course are expected to do a lot of self-learning. Usually, a student takes all the courses on-site or all the courses online. However, for a student who resides in a location where on-site classes are available, this student can take classes in both formats.

RESULTS

Demographics of Subjects

A total of 142 completed questionnaires for on-site classes and 78 questionnaires for online classes were used for data analysis. The respondents who returned these accepted questionnaires will be called "subjects" from here onwards. Student subjects who participated in this survey were both undergraduate and graduate students from various colleges and schools of XYZ University as summarized in Table 3. There was one student who was enrolled in two of the classes. This student did not answer the questionnaire two times.

Table 3: Subject Academic Background			
	Undergraduate	Graduate	Total
College of Letter and Sciences (COLS)	On-Site: 8 Online: 3	On-Site: 12 Online: 0	On-Site: 20 Online: 3
School of Business and Management (SOBM)	On-Site: 6 Online: 0	On-Site: 23 Online: 8	On-Site: 29 Online: 8

School of Education (SOE)	On-Site: 1 Online: 0	On-Site: 31 Online: 18	On-Site: 32 Online: 18
School of Engineering and Computing (SOEC)	On-Site: 18 Online: 25	On-Site: 21 Online: 7	On-Site: 39 Online: 32
School of Health and Human Services (SHHS)	On-Site: 1 Online: 4	On-Site: 8 Online: 0	On-Site: 9 Online: 4
School of Professional Studies (SOPS)	On-Site: 0 Online: 11	On-Site: 11 Online: 0	On-Site: 11 Online: 11
School Unknown	On-Site: 2 Online: 2	On-Site: 0 Online: 0	On-Site: 2 Online: 2
Total:	On-Site: 36 Online: 45 Total: 81	On-Site: 106 Online: 33 Total: 139	On-Site: 142 Online: 78 Total 220

As for gender of the subjects, 132 are male, 87 are female, and one subject declined to answer about the gender. 11 of the 220 subjects are 23 years old or under, 104 are between 24 and 33 years old, 65 are between 34 and 43 years old, 39 are 44 years old or over, and the rest declined to answer the question about age. Among the 220 subjects, 197 are domestic students, 19 are international students, and the rest did not answer this question. Among the 220 subjects, 73 are military veterans, 10 are on active military duty, 100 are civilians with no military experience, and the rest declined to answer this question.

Among the 220 subjects, 196 were not enrolled in another course for credit at the same time, 16 were enrolled in another undergraduate course, and 8 enrolled in another graduate course concurrently. Among the 220 subjects, 3 were taking the first course in their programs at the time the questionnaire was answered, 47 had taken 1-4 courses in their programs, 59 had taken 5-10, and 111 had taken more than 10 courses in their respective programs. Among these 220 subjects, 213 had graduation as the major academic goal, 5 were taking courses to eventually transfer to another institution, one was taking courses as needed, not necessary for a degree or for a credential, the rest did not choose any of the above answers. Among the 220 subjects, 206 intended to put in the best effort in every course to learn and to succeed, 7 intended to just put in enough effort to keep themselves in school, 6 intended to put in effort as they felt like it course by course, and one did not choose any of the above answers. Among the 220 subjects, 113 were working full-time regularly for 40 or more hours per week, 10 were working regularly between 35 and 39.99 hours per week, 23 were working regularly between 20 and 34.99 hours per week, 16 were working regularly but fewer than 20 hours per week, 14 were working only whenever a suitable job came up, and 44 were not working at all (unemployed). As for the family responsibilities, among the 220 subjects, 109 of them are responsible for at least 50 percent of taking care of dependents within driving distance, 8 of them are responsible for less than 50 percent of taking care of dependents within driving distance, 92 have no dependents, and the rest did not choose any of the above answers.

Statistical Results

Overall, the research results indicate that, to students who are in an accelerated program, many of the initiatives derived from The Institutional Action Model (Tinto, 2012a) are applicable to both on-site students and online students. On-site students view the usefulness of all initiatives positively except that they are neutral about the usefulness of getting the chance to know the faculty and students from their own social/ethnic background. They are also willing to and capable of using all the initiatives. As for online students, they view the usefulness of most of

the initiatives positively. They are neutral about the usefulness of the following: a pre-program assessment to determine the need for learning skills improvement or preparatory courses, being involved in class team projects with other equally contributing students during class time and outside class time, and being involved in a student-level contest in their field. Online students view the usefulness of the following negatively: getting the chance to know the faculty and students from their own social/ethnic background and attending regular social gatherings with faculty, alumni/ae, and students in the school, such as an annual local BBQ party or a quarterly online lecture series. As for their willingness and capability of using the initiatives, online AL students are positive for most of them. However, they are neutral about participating in: a pre-program assessment to determine the need for learning skills improvement or preparatory courses, a study group in each course, a student-level contest in their field, and attending regular social gatherings with faculty, alumni/ae, and students in the school, such as an annual local BBQ party or a quarterly online lecture series. They are negative about choosing a team project outside class time over choosing an individual project outside class time.

Table 4 below is a summary of the findings. Each row corresponds to an initiative. For each initiative, to answer the first research question, a hypothesis was tested for on-site students' perceived usefulness and another hypothesis was tested for online students' perceived usefulness.   To answer the second research question, similar, a hypothesis was tested for on-site students' willingness and capability of participation and another one was tested for online students' willingness and capability of participation. A dash denotes that students' voluntary participation in a certain initiative is not applicable and this willingness/capability to participate was not studied. For each hypothesis, a two-tailed z-test with alpha 0.05 (0.025 on each side) was used. The z-score for the null hypothesis to be rejected was 1.96 or higher on the positive side or -1.96 or lower on the negative side. An asterisk next to a z-score denotes that this z-score does not fall into the rejection area, thus, the null hypothesis cannot be rejected.

Table 4: A Complete View of Student Perception and Initiative Participation					
		On-Site		Online	
	Expectation	Perception	Participation	Perception	Participation
1.	A university-level orientation, which explains the rules and regulations of the institution, the general expectation of all students, and the culture there.	H1 Positive n: 139 z-score: 6.2276 p-value: 4.7E-10	H55 Positive n: 140 z-score: 8.4838 p-value: 2E-17	H7 Positive n: 78 z-score: 4.2500 p-value: 2.1E-05	H59 Positive n: 78 z-score: 4.0252 p-value: 6E-05
2.	A program-level orientation, which explains the program-level skills and expectation of student effort.	H2 Positive n: 142 z-score: 9.5540 p-value: 1E-21	H56 Positive n: 142 z-score: 10.7309 p-value: 7.3E-27	H8 Positive n: 78 z-score: 6.8565 p-value: 7E-12	H60 Positive n: 77 z-score: 7.0676 p-value: 2E-12
3.	Before each course starts, an email from the instructor, which explains the course-	H3 Positive n: 142	-	H9 Positive n: 78	-

	level skills and expectation of student effort in this course.	z-score: 15.6552 p-value: 3.1E-55		z-score: 16.2021 p-value: 4.9E-59	
4.	Setting high and reasonable expectations and holding all students to these expectations fairly.	H4 Positive n: 142 z-score: 17.7332 p-value: 2.3E-70	-	H10 Positive n: 78 z-score: 11.8515 p-value: 2.1E-32	-
5.	A personal career counseling session to help students understand which career paths are suitable for them before enrolling in a program.	H5 Positive n: 142 z-score: 11.3440 p-value: 7.9E-30	H57 Positive n: 142 z-score: 12.2237 p-value: 2.3E-34	H11 Positive n: 77 z-score: 4.6215 p-value: 4E-06	H61 Positive n: 78 z-score: 6.0764 p-value: 1E-09
6.	Assigning a personal mentor (either a faculty member or an alumnus/a) who can answer questions about academic issues and career planning.	H6 Positive n: 142 z-score: 12.6973 p-value: 6.1E-37	H58 Positive n: 138 z-score: 7.1027 p-value: 1E-12	H12 Positive n: 78 z-score: 9.6732 p-value: 4E-22	H62 Positive n: 73 z-score: 4.8421 p-value: 1E-06
		On-Site		Online	
	Academic Support	Perception	Participation	Perception	Participation
7.	A pre-program assessment to determine whether a student would need to improve learning skills or take any preparatory courses to succeed in the chosen program.	H13 Positive n: 142 z-score: 2.7661 p-value: 0.0057	H63 Positive n: 141 z-score: 3.9607 p-value: 7E-05	H18 Neutral n: 77 z-score: 1.195* p-value: 0.2321	H67 Neutral n: 78 z-score: 1.1778* p-value: 0.2389
8.	Presenting a clear picture of how the knowledge in different courses of the chosen program fits together in an overall picture in the first course.	H14 Positive n: 142 z-score: 11.5578 p-value: 6.7E-31	-	H19 Positive n: 78 z-score: 8.3572 p-value: 6E-17	-

9.	In each course in the program, providing a tutor for asking questions.	H15 Positive n: 141 z-score: 9.7576 p-value: 2E-22	H64 Positive n: 141 z-score: 12.6131 p-value: 1.8E-36	H20 Positive n: 78 z-score: 8.5078 p-value: 2E-17	H68 Positive n: 78 z-score: 11.93303 p-value: 7.96E-33
10.	In each course in the program, having a student study group available.	H16 Positive n: 142 z-score: 8.5133 p-value: 2E-17	H65 Positive n: 141 z-score: 6.6207 p-value: 4E-11	H21 Positive n: 78 z-score: 2.2603 p-value: 0.0238	H69 Neutral n: 78 z-score: 1.2496* p-value: 0.2114
11.	In each course in the program, providing relevant supplemental instruction modules, such as pre-recorded video clips, in addition to the normal class components.	H17 Positive n: 141 z-score: 14.5556 p-value: 5.4E-48	H66 Positive n: 141 z-score: 16.0493 p-value: 5.8E-58	H22 Positive n: 78 z-score: 9.7367 p-value: 2E-22	H70 Positive n: 77 z-score: 11.9934 p-value: 3.8E-33
		On-Site		Online	
	Social Support	Perception	Participation	Perception	Participation
12.	Giving students the chance to know the faculty and other students in the program or school socially.	H23 Positive n: 141 z-score: 7.1992 p-value: 6E-13	-	H25 Positive n: 78 z-score: 2.4470 p-value: 0.01441	-
13.	Giving students the chance to know the faculty and students from their own social/ethnic background socially.	H24 Neutral n: 142 z-score: 0.7895* p-value: 0.4298	-	H26 Negative n: 76 z-score: -3.5416 p-value: 0.0004	-
		On-Site		Online	
	Financial Support	Perception	Participation	Perception	Participation
14.	Giving access to more grant or scholarship money for the present education.	H27 Positive n: 140 z-score:	-	H29 Positive n: 77 z-score:	-

		15.3630 p-value: 2.9E-53		10.9179 p-value: 9.5E-28	
15.	Giving access to more student loans for the present education.	H28 Positive n: 139 z-score: 3.3527 p-value: 0.0008	H71 Positive n: 138 z-score: 2.5393 p-value: 0.0111	H30 Positive n: 77 z-score: 2.3753 p-value: 0.0175	H72 Positive n: 76 z-score: 3.9154 p-value: 9E-05
		On-Site		Online	
	Assessment and Feedback	Perception	Participation	Perception	Participation
16.	In addition to the exams in each course, giving constant and informal feedback to inform students and the instructor of the students' learning.	H31 Positive n: 142 z-score: 22.6393 p-value: 2E-113	-	H34 Positive n: 76 z-score: 10.1101 p-value: 5E-24	-
17.	While students are in the program, getting them and their academic advisors informed early about any additional assistance needed to go forward.	H32 Positive n: 142 z-score: 20.2465 p-value: 3.8E-91	-	H35 Positive n: 77 z-score: 12.8217 p-value: 1.2E-37	-
18.	Students maintaining a learning portfolio that documents their own academic accomplishments for reflection and self-assessment purposes.	H33 Positive n: 142 z-score: 12.6924 p-value: 6.5E-37	H73 Positive n: 139 z-score: 7.4376 p-value: 1E-13	H36 Positive n: 77 z-score: 6.0967 p-value: 1E-09	H74 Positive n: 78 z-score: 5.5048 p-value: 4E-08
		On-Site		Online	
	Involvement	Perception	Participation	Perception	Participation
19.	Involving students in class team projects with other equally contributing students during class time.	H37 Positive n: 142 z-score: 8.3556 p-value: 7E-17	-	H46 Neutral n: 77 z-score: -0.7406* p-value: 0.45894	-

20.	Involving students in class team projects with other equally contributing students outside class time.	H38 Positive n: 142 z-score: 3.7847 p-value: 0.00015	H75 Positive about choosing a team project outside class time over an individual project n: 141 z-score: 2.7057 p-value: 0.0068	H47 Neutral n: 77 z-score: -0.9681* p-value: 0.33299	H81 Negative about choosing a team project outside class time over an individual project n: 77 z-score: -3.4999 p-value: 0.0005
21.	Using cohorts to have students taking courses and interacting with the same cohort all the way through the program.	H39 Positive n: 142 z-score: 12.5591 p-value: 3.5E-36	-	H48 Positive n: 78 z-score: 5.0598 p-value: 4E-07	-
22.	While students learn the material in a course, giving them the chance to apply the concepts learned (engage in proper problem-based learning).	H40 Positive n: 142 z-score: 17.9233 p-value: 7.8E-72	-	H49 Positive n: 77 z-score: 13.9974 p-value: 1.6E-44	-
23.	Offering opportunities that give students relevant hands-on work experience, such as an internship or a service learning course.	H41 Positive n: 141 z-score: 20.5643 p-value: 5.7E-94	H76 Positive n: 142 z-score: 19.2218 p-value: 2.4E-82	H50 Positive n: 78 z-score: 11.0597 p-value: 2E-28	H82 Positive n: 77 z-score: 9.4273 p-value: 4E-21
24.	Offering opportunities that allow students to join and participate in the student chapter of a professional organization in their field of study.	H42 Positive n: 141 z-score: 11.6980 p-value: 1.3E-31	H77 Positive n: 140 z-score: 10.7042 p-value: 9.7E-27	H51 Positive n: 78 z-score: 5.2456 p-value: 2E-07	H83 Positive n: 76 z-score: 4.1279 p-value: 4E-05
25.	Offering opportunities for students to join	H43 Positive	H78 Positive	H52 Positive	H84 Positive

	and participate in an institution/school/program level alumni/ae and student online portal.	n: 142 z-score: 7.5387 p-value: 5E-14	n: 139 z-score: 3.8363 p-value: 0.0001	n: 77 z-score: 2.6345 p-value: 0.0084	n: 77 z-score: 2.4789 p-value: 0.0132
26.	Offering opportunities for students to participate in a student-level contest in their field as an extracurricular activity.	H44 Positive n: 139 z-score: 3.7185 p-value: 0.0002	H79 Positive n: 142 z-score: 3.0869 p-value: 0.002	H53 Neutral n: 76 z-score: -0.9037* p-value: 0.3661	H85 Neutral n: 77 z-score: -1.1452* p-value: 0.25213
27.	Offering opportunities for students to attend a regular social gathering, such as an annual local BBQ or a quarterly online lecture series with the faculty, alumni/ae, and students in the school.	H45 Positive n: 142 z-score: 3.7799 p-value: 0.0002	H80 Positive n: 141 z-score: 4.1017 p-value: 4E-05	H54 Negative n: 77 z-score: -0.2689* p-value: 0.78803	H86 Neutral n: 77 z-score: 0.1717* p-value: 0.8637

DISCUSSION AND CONCLUSIONS

The results of this study point to two theoretical implications. First, all the conditions for student success in the Institutional Action Model (Tinto, 2012a), which are expectation, support (academic, social, and financial), assessment and feedback, and involvement, are more applicable to students in on-site AL programs than to their online counterparts. On-site AL students perceive most of the initiatives positively (except one) and are willing to participate in them. However, as shown in the section above, online AL students are not positive about several of these initiatives. One possible explanation could be the fact that, on-site AL students are closer to students in traditional higher education programs. They still have to attend classes on campus physically and they have more time for the initiatives suggested, especially those under social support and involvement. Online students chose to attend school online and this might mean they have more responsibilities that demand their attention and time. They would like to achieve their academic goals as quickly as possible. Therefore, they are not that positive about pre-assessment, study groups, team projects, team student contests, and social gatherings. We may need a modified version of this model for online AL students. Second, the initiative of giving AL students the chance to socially know the faculty and students from their own social/ethnic background does not apply to either on-site (neutral) or online (negative) students. This initiative under social support needs to be reconsidered.

There are two practical implications for institutions that offer AL programs. First, when students (especially online students) are required to go through a pre-assessment program before they take the first class, it is very important that a positive explanation be given to these new students to let them understand the importance of pre-assessment for their academic success and achievement of their career goals. Second, since online AL students do not prefer some of the initiatives under social support and involvement, institutions have to be careful about giving

too many mandatory class team projects. Social events, such as local BBQ parties for faculty and students, might not be as effective among online students as among on-site ones. Providing academic support and letting online AL students work on their own might be more suitable initiatives.

Limitations and Future Research Directions

This study had two limitations. First, the sample used was a convenience sample and not a random sample. Second, data were collected from different class sections of one university and not several different universities that offer AL programs.

There are several future research directions. First, this study can be expanded to use random samples from more than one university that offers AL programs. Further, among these universities chosen, it would even be better if they can be a combination of public and private universities, so as to broaden the scope of such an investigation. Second, a formal qualitative study can be used to study why online students do not prefer initiatives that enhance their involvement, such as joining a voluntary student study group and extracurricular activities, such as a student-level contest and regular local BBQ parties. Doing a formal qualitative study can understand the "why" part of an issue in an in-depth manner. Third, with a more thorough understanding of the suitable initiatives for online AL students, a new version of The Institutional Action Model can be developed for this group of students. Fourth, for each initiative deemed useful by AL students, further studies are needed to determine how they can be designed and executed effectively, so as to be the most useful to AL students. In fact, such further studies can be extended to understand which execution approach is the best for which type of AL students.

Conclusions

This paper has presented an empirical study to verify The Institutional Model by Tinto (2012a). Most of the initiatives derived from this model are deemed to be useful by both on-site and online AL students. One major difference between on-site and online students is the lower perceived usefulness and participation willingness in social activities among online students.

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