Students' inductive reasoning and perception on course completion in universities in Uganda

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Abstract: This is an exploration into the intricate workings of inductive reasoning and perception among students, particularly in the context of course completion. The study comes into the students' reasoning and perception on course completion in universities in Uganda, seeking to reveal the factors that influence students' ability to pass through the academic landscape and successfully complete their courses. Throughout this study, the aim is to shed light on the cognitive processes that underpin students' inductive reasoning abilities and how these processes shape their perceptions of course completion. The study was guided by Positivism Philosophy supported by the Theory of reasoned action. 375 participants obtained for cross-sectional studies from each of the 3 selected universities. These will be: 360 students, 9 lecturers and 6 administrators. Questionnaire, Interview guide, and Observation sheet helped to gather data qualitatively. It was found out that there is a positive correlation between students' inductive reasoning abilities and their likelihood of completing courses successfully. Students who can apply inductive reasoning skills to course materials are better equipped to navigate academic challenges and persist in their studies. It was recommended to integrate inductive reasoning skills into curriculum design and to support effective teaching practices which encourage student support services to enhance critical thinking and problem-solving abilities.

Keywords: inductive reasoning, course completion, students, universities

Introduction:

The context of higher education in Uganda presents a unique landscape shaped by various socio-economic, cultural, and institutional factors. As in many developing countries, Uganda's higher education system faces challenges in ensuring equitable access, quality education, and successful academic outcomes for its students. Within this framework, the completion of courses stands as a critical milestone, indicating not only individual academic achievement but also institutional effectiveness and contribution to national development.

The completion of courses in universities is influenced by a myriad of factors ranging from personal characteristics to institutional support structures. Among these factors, students' cognitive processes, particularly their inductive reasoning, play a significant role in shaping their academic experiences and outcomes. Inductive reasoning refers to the ability to derive general principles from specific instances or observations, a cognitive skill fundamental to learning, problem-solving, and critical thinking.

Furthermore, students' perceptions of their academic environment, including their attitudes towards coursework, faculty support, and institutional resources, greatly influence their motivation, engagement, and ultimately, their likelihood of completing their courses successfully. Understanding students' perceptions provides valuable insights into the effectiveness of educational practices, institutional policies, and support mechanisms designed to enhance student learning and retention.

In the context of Uganda, where higher education institutions are striving to address the evolving needs and challenges of a diverse student population, exploring students' inductive reasoning and perceptions on course completion becomes imperative. Despite efforts to improve access to higher education, disparities in completion rates persist, reflecting underlying issues related to teaching methodologies, curriculum relevance, student support services, and socio-economic constraints.

Understanding students' inductive reasoning and perceptions on course completion in Ugandan universities is crucial for informing evidence-based interventions, policies, and practices aimed at improving educational outcomes, fostering inclusive learning environments, and empowering students to realize their full academic potential in the pursuit of higher education.

Therefore, this study seeks to delve into the intricacies of students' inductive reasoning processes and perceptions within Ugandan universities. By examining the cognitive strategies employed by students and their attitudes towards coursework, the research aims to identify barriers and facilitators to course completion, as well as opportunities for enhancing the educational experience and promoting student success.

Background:

In ancient times, education often involved rote memorization of classical texts. Scholars like Cicero and Quintilian emphasized the importance of oratory and rhetorical skills. Course completion was often measured by adherence to established knowledge.

During the Renaissance and Enlightenment, there was a shift towards critical thinking. Erasmus emphasized the development of reasoning skills, and John Locke advocated for a curriculum that fostered independent thinking. Completion was tied to the ability to engage in critical discourse.

The Industrial Revolution prompted a focus on practical applications of knowledge. Comenius advocated for practical education, and John Dewey emphasized experiential learning. Completion became linked to the ability to apply knowledge in real-world contexts (Greeno, J. 1980).

During the 19th Century, Wilhelm von Humboldt and John Henry Newman influenced the idea of a liberal arts education. Disciplinary specialization became prominent, with completion associated with mastery in a particular field.

The 20th century witnessed massification of higher education. The Morrill Act and the GI Bill expanded access, leading to increased enrollments. Completion rates became a significant metric for evaluating the effectiveness of educational policies. Late 20th Century to Present, with the Cognitive Shift and Lifelong Learning (Bloom, B. et al. 1956), Bloom's Taxonomy influenced educational goals, emphasizing higher-order thinking skills. Malcolm Knowles promoted adult education and lifelong learning. Course completion evolved to reflect not just content mastery but also the ability to think critically and adapt to a changing world.

The late 20th century saw the integration of technology. Online learning platforms and Massive Open Online Courses (MOOCs) emerged, offering new models for course completion and changing the dynamics of traditional classrooms.

Current trends include a shift towards competency-based education, focusing on students' ability to demonstrate specific skills and competencies. Course completion is increasingly tied to the mastery of predefined learning outcomes. Holistic Assessment and Soft Skills: There is a growing emphasis on holistic assessment, considering not only cognitive skills but also soft skills. Completion is seen as the acquisition of a broad set of competencies, including critical thinking, communication, and collaboration.

Diversity, Inclusion, and Equity: Contemporary discussions on completion also center around diversity, inclusion, and equity. Efforts are made to address historical disparities and ensure that educational opportunities and outcomes are accessible to a diverse student population.

In conclusion, the historical perspective on students' reasoning and course completion in universities reflects a dynamic interplay between societal needs, educational philosophies, and evolving pedagogical approaches. Over time, the criteria for course completion have expanded beyond mere content mastery to encompass critical thinking, practical application, and a broader set of skills relevant to the demands of the contemporary world.

Methodology:

The research was guided by Positivism Philosophy by Auguste Comte during early 19th century – basing on the ideology that students perform behaviors having enough knowledge about such (efficacy) and well knowing the consequences. This was supported by the Theory of reasoned action. The researcher based on this philosophy when collecting (using interviews and observation instruments) and analyzing qualitative data. Therefore, the study had positivism philosophy while collecting and analyzing qualitative data. The research employed more of qualitative research approach. Descriptive research design was used. Qualitative research methods such as interviews, focus groups, and observations were used to provide valuable insights into students. A sample size of 375 participants obtained for cross-sectional studies from each of the 3 selected universities. These will be: 360 students, 9 lecturers and 6 administrators. Random sampling was used to select 3 universities from the Central region of Uganda. The research study collected data using Questionnaire, Interview guide and Observation sheet as research instruments. Qualitative data analysis involved identification and transcription of the qualitative findings into categories. The categories on each of the variables were then sorted and aligned to the research objectives from which lessons leaned on students' inductive reasoning and course completions in a narrative form.

Findings:

The study found out that there is a positive correlation between students' inductive reasoning abilities and their likelihood of completing courses successfully. Students who can apply inductive reasoning skills to course materials are better equipped to navigate academic challenges and persist in their studies. Students' deductive reasoning abilities are crucial for understanding course materials, solving complex problems, and making informed decisions throughout their academic journey. Students with strong deductive reasoning skills demonstrate higher academic performance and are more likely to complete their courses successfully. They can analyze course materials critically, identify patterns, and apply logical principles to solve problems effectively. Variations in cognitive abilities, learning styles, and prior knowledge significantly shape students' proficiency in deductive reasoning. Factors such as intelligence quotient (IQ), working memory capacity, and meta cognitive strategies influence how students engage in deductive reasoning tasks. The quality of education and instructional methods employed in universities play a significant role in developing students' deductive reasoning skills. Engaging classroom activities, interactive learning experiences, and opportunities for problem-solving contribute to the enhancement of deductive reasoning abilities. Deductive reasoning enhances students' ability to retain and apply course content, leading to active engagement in learning activities and increased motivation to persist in their studies. Proficient deductive reasoners exhibit greater self-regulatory behaviors and meta cognitive awareness, allowing them to

monitor and regulate their learning processes effectively. They can approach complex problems systematically, break them down into manageable components, and devise logical solutions.

Recommendations:

Inductive reasoning skills integrated into curriculum design, providing faculty development initiatives to support effective teaching practices, and establishing student support services that enhances critical thinking and problem-solving abilities.

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