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APPSHEET DESIGN TO MEASURE THE CONDITIONAL PROCESS MODEL OF THE INFLUENCE OF ENTREPRENEUR KNOWLEDGE, INNOVATION CAPABILITY AND TECHNOPRENEURSHIP ON ENTREPRENEUR INTENTION

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Abstract

This study aims to develop an AppSheet-based application to measure the conditional process model of the influence of entrepreneurial knowledge, innovation capability, and technopreneurship on entrepreneurial intention. The development follows the 4D model, consisting of define, design, develop, and disseminate stages. The result is an Android-accessible AppSheet application that includes features such as a main menu, user instructions, respondent identity form, and standardized Likert-scale questionnaires covering entrepreneurial intention, entrepreneurial knowledge, innovation capability, self-efficacy, and technopreneurship. Expert validation confirmed the application's feasibility in terms of content, language, and media, with high validity scores across all aspects. This application is considered user-friendly, accessible, and efficient for collecting structured research data in entrepreneurship studies. The novelty of this work lies in transforming AppSheet from an administrative tool into a fully functional research instrument for psychological variables. The application supports real-time data collection and conditional process analysis, offering a practical and scalable solution for entrepreneurship researchers.

Keywords: Appsheet design, Entrepreneur intention, Entrepreneur knowledge, Innovation capability, Technopreneurship.

1. Introduction

The development of digital technology has brought significant changes to all sectors, including education and research [1]. The shift toward digital systems has influenced how data is collected and processed, pushing higher education institutions to adopt more adaptive and efficient tools. One such innovation is the use of customizable application platforms, like AppSheet, which allow researchers and educators to create mobile-based systems without programming expertise. This development addresses the growing need for flexible and user-friendly digital instruments in research and learning. AppSheet has been previously applied in administrative settings such as attendance tracking and online learning support [2-4]. The platform is positively received due to its ease of use and ability to streamline digital workflows. However, existing applications have primarily focused on operational convenience rather than using AppSheet as a research instrument for data collection and analysis. This gap presents an opportunity to explore its potential in academic research, particularly in measuring psychological constructs related to entrepreneurship. The current study focuses on the development of an AppSheet-based application designed to measure the conditional process model involving entrepreneurial knowledge, innovation capability, and technopreneurship as predictors of entrepreneurial intention. Unlike previous studies, this research uses AppSheet not only for functional data entry but as a structured research tool aligned with standardized psychological variables. The application includes measurement instruments grounded in the Theory of Planned Behavior [5], self-efficacy theory, and contemporary entrepreneurship models [6-9].

This study developed and validated a mobile application using the AppSheet platform that is tailored to measure the conditional process model of entrepreneurial intention among university students, giving novelties: (i) the development of AppSheet as a standardized research instrument rather than a utility tool, (ii) the integration of multiple psychological variables into a digital format, and (iii) the creation of a scalable data collection system suitable for entrepreneurship research, contributing a practical solution for digitalizing the measurement of entrepreneurial constructs in a mobile, accessible, and user-centered format.

2. Literature Review

Figure 1 illustrates the simulation process of using AppSheet as a research instrument, as a no-code platform that allows integration with Google Sheets, Excel, and SQL for real-time data collection via mobile devices. Its simplicity and accessibility make it ideal for various applications, including education and administration [3, 10, 11]. It can be used to measure psychological constructs grounded in established behavioral theories. Entrepreneurial intention, for example, is often explained through the Theory of Planned Behavior [5], where intention arises from attitudes, subjective norms, and perceived behavioral control [8, 12]. Entrepreneurial knowledge reflects the ability to identify and act on business opportunities [7, 13]. Innovation capability is associated with risk-taking, opportunity responsiveness, and adaptability [9, 14]. Self-efficacy, or belief in personal ability to perform tasks, influences entrepreneurial motivation and resilience [15, 16]. Technopreneurship, combining technology with entrepreneurship, plays a mediating role in transforming skills and knowledge into intention [17, 18].

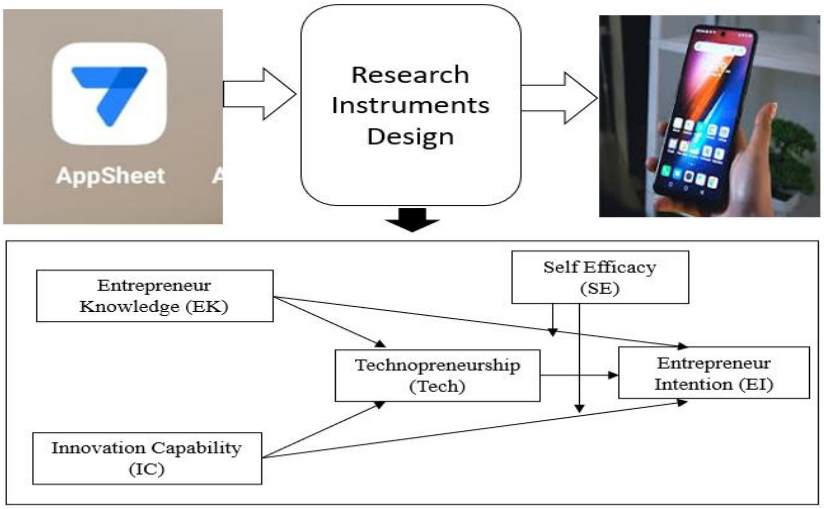

Fig. 1. AppSheet process simulation.

3. Research Methods

The procedure followed the 4D model: Define, Design, Develop, and Disseminate. Detailed information for this method is reported elsewhere [19]. The define stage involved identifying needs and determining the scope and objectives of the application. In the design stage, a prototype was created, including the instruments and interface layout tailored to psychological constructs. The development stage consisted of building the application using the AppSheet platform and validating content, language, and usability through expert review. Feedback was incorporated to revise the product. In the disseminate stage, the final application was distributed to student respondents, and data were collected to measure entrepreneurial intention and its related variables. We analysed statistics to get a better understanding of the results. Detailed information on how to analyse using statistical analysis is reported elsewhere [20-22].

4. Results and Discussion

Figure 2 illustrates the flow of the AppSheet development process based on the 4D model. The development begins with a needs analysis, identifying issues related to entrepreneurial intention and its underlying variables. In the Define stage, the purpose, scope, and specifications of the digital instrument are determined. The Design stage involves prototyping the user interface and preparing the psychological measurement instruments. In the Develop stage, the AppSheet application is constructed and validated by experts for its content relevance, linguistic clarity, and usability. The Disseminate stage involves distribution to student respondents, accompanied by data collection and evaluation.

Figure 3 presents the application interface in detail. Detailed appearance of the application is explained in the following:

(i) Figure 3(a) shows the AppSheet application icon, and the derivative app labeled "App Entrepreneur Intention," as displayed on a mobile device.

(ii) Figure 3(b) displays the home screen with a navigation menu including five main variables: Entrepreneur Intention, Innovation Capability, Self-Efficacy, Technopreneurship, and Entrepreneur Knowledge. Supporting options such as "About," "Share," and "App Info" are also available.
(iii) Figure 3(c) illustrates the respondent identity form, which captures the participant's name, gender, semester, and university of origin.
(iv) Figure 3(d) shows the general instruction page, offering general guidelines for completing the questionnaire.
(v) Figure 3(e) contains the items measuring Entrepreneur Intention, focusing on respondents' motivation and willingness to engage in entrepreneurial activities.
(vi) Figure 3(f) presents items for Entrepreneurial Knowledge, designed to assess conceptual understanding of entrepreneurship theory and practice. The page with the same contains the items measuring Innovation Capability, Self-Efficacy and Technopreneurship items.

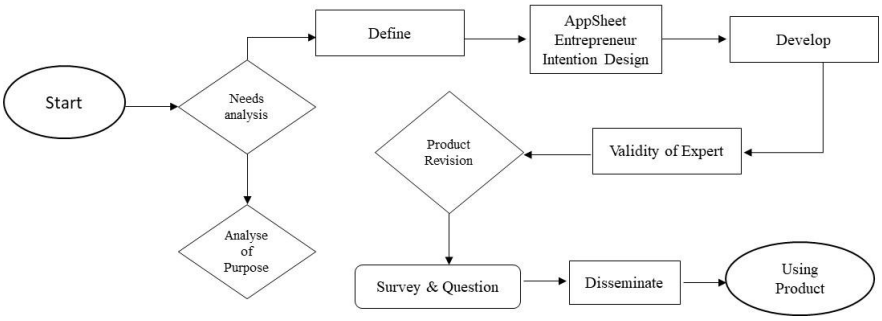

Fig. 2. Entrepreneur intention design Appsheet flowchart.

Validation by experts resulted in average scores of 3.92 for content, 3.96 for language, and 3.90 for media aspects. The overall average of 3.93 confirms the tool's validity. The outer loading analysis showed values above 0.707 across all variables, indicating high internal consistency and instrument reliability. The structured digital format offers ease of access and efficient data management. In the dissemination phase, the application was deployed across three universities in North Sumatra. Results showed that entrepreneurial knowledge, innovation capability, and self-efficacy positively and significantly influenced entrepreneurial intention. Technopreneurship was found to mediate the effects of entrepreneur knowledge and innovation capability. Moreover, self-efficacy moderates the relationship between entrepreneurial knowledge and entrepreneurial intention, but not between innovation capability and entrepreneurial intention.

These findings are consistent with previous studies that emphasize the role of entrepreneurial knowledge in opportunity recognition [7, 18]. Innovation capability in business performance [14, 17], and self-efficacy in entrepreneurial commitment [15, 23]. The integration of AppSheet with cloud data platforms enhances real-time data processing [10, 11]. This validates the AppSheet-based application as both a technological solution and a robust research instrument in entrepreneurship studies. This study reinforces existing research on the implementation of media in enhancing educational engagement [24-28] and fostering entrepreneurial competencies [29-33].

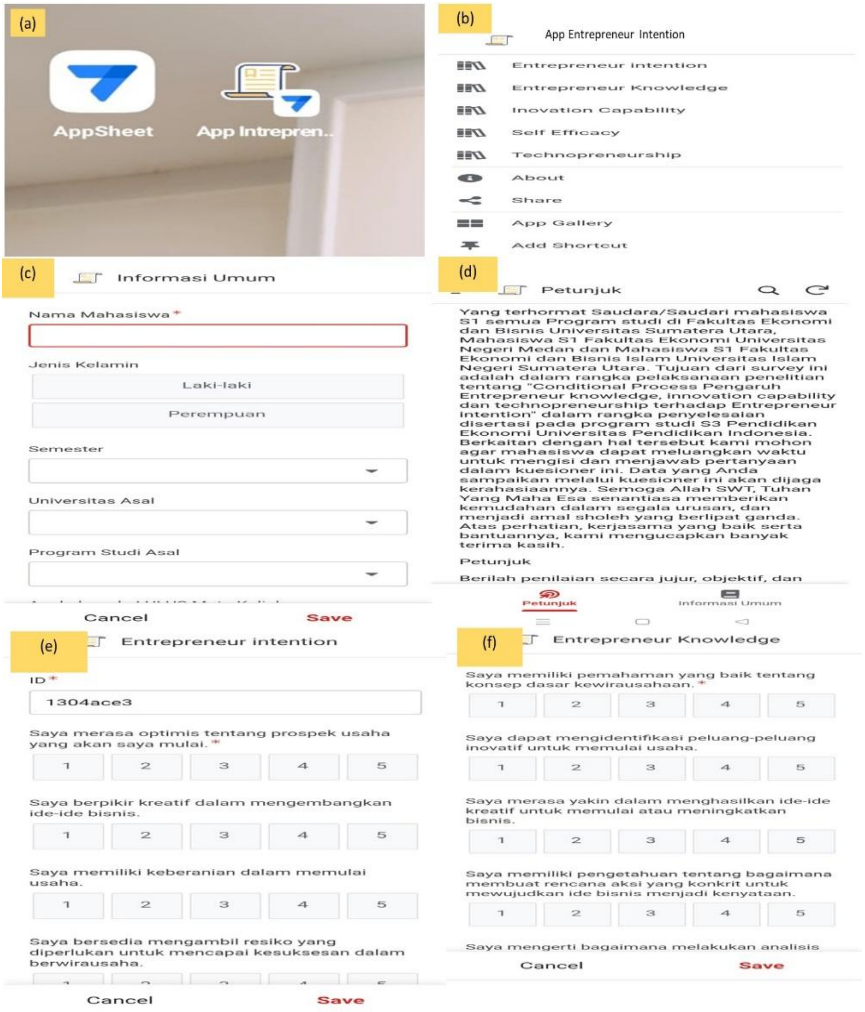

Fig. 3. AppSheet design entrepreneur intention view: (a) Ikon AppSheet design, (b) Display home screen, (c) Respondent identity, (d) General instructions, (e) Contains the items measuring entrepreneur intention, and (f) contains the items measuring entrepreneurial intention.

5. Conclusion

This study developed a mobile-based AppSheet application to measure the conditional process model involving entrepreneurial knowledge, innovation capability, self-efficacy, technopreneurship, and entrepreneurial intention. Using the 4D model, the application was designed, validated, and disseminated for data collection across multiple universities. Expert validation confirmed high feasibility in terms of content, language, and usability. The application successfully captured significant relationships among the measured variables and demonstrated strong psychometric reliability. As a digital research tool, the AppSheet platform offers a practical, scalable, and user-friendly solution for entrepreneurship studies, particularly for assessing behavioural constructs in real time.

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