MICROSOFT VISIO APPLICATION COMPETENCIES NEEDED BY OFFICE TECHNOLOGY AND MANAGEMENT STUDENTS FOR EFFECTIVE SECRETARIAL PRODUCTIVITY IN THE 21ST CENTURY

JOSHUA S. Mamman
Department of Business and Entrepreneurship Education, Kwara State University, Malete
joshua.mamman@kwasu.edu.ng
https://orcid.org/0000-0003-3872-2247

Abstract
This study investigated the Microsoft Visio application competencies that Office Technology and Management (OTM) students need for effective secretarial productivity in the 21st century. The study has one research question and hypothesis. The study employed an explanatory mixed-method design, involving a cross-sectional survey and focus group discussions. The population comprised 1,944 OTM students from 10 federal and state polytechnics in Southwest Nigeria, with a sample of 365 students selected using proportional stratified sampling. Quantitative data were collected using the Microsoft Visio Application Competencies Questionnaire (MVACQ). The MVACQ was duly validated by three experts with a Cronbach reliability coefficient of 0.87. The qualitative aspect utilized focus group discussion (FGD). The quantitative data were analyzed using mean and standard deviation while the hypothesis was tested with Analysis of Variance (ANOVA) at a 0.05 significance level. The qualitative data were analyzed using the analytical coding method. The findings revealed that Microsoft Visio competencies are very highly needed for effective secretarial productivity in the 21st century by Office Technology and Management students (mean = 3.53); there was no significant difference in the mean ratings of respondents on the Microsoft Visio competencies needed for effective secretarial productivity in the 21st century based on years of experience ($F(3, 355) = .75$; $p > .05$). The study concludes that as administrative roles evolve in response to technological advancements, the ability to utilize the Microsoft Visio for secretarial functions becomes essential for success in the modern workplace. The study recommends that federal and state polytechnics should incorporate comprehensive Microsoft Visio training into their curricula. This training should cover essential competencies such as navigating the software, creating organizational charts, and developing network diagrams.

Keywords: Microsoft Visio, office technology and management, secretarial productivity, students

Introduction

Contemporary secretaries must utilize current Microsoft Office applications to establish an information system architecture that allows them to effectively perform their office tasks and obligations, thereby enhancing their productivity. The responsibilities of a secretary in both public and private sector parastatals have recently expanded significantly. The secretary must possess a specific level of proficiency in Microsoft Office applications to utilize information systems properly and efficiently. Okpokwasili (2018) asserts that the responsibilities of a secretary extend beyond the performance of mundane manual chores. Okpokwasili notes that secretaries are now required to have advanced skills in utilizing contemporary information technology to effectively carry out their responsibilities in an automated office setting. Secretaries in numerous firms are commonly designated as information managers. This is because the operational procedures that secretaries are consistently exposed to are analogous to typical office information management operations (Olayanju, 2019). In the 21st century, secretarial tasks, like other corporate functions,

have experienced a growing level of automation and digitization. This has been particularly evident with the introduction of the Microsoft Office Suite.

The Microsoft Office suite has numerous tools that alleviate the workload of secretaries. The suite comprises the following applications: Microsoft Word, Microsoft Excel, PowerPoint, Access and Publisher, Microsoft Outlook, Microsoft OneNote, Microsoft SharePoint, Microsoft Lync, and Microsoft Visio. However, the National Board for Technical Education (NBTE) does not approve certain applications within the Microsoft Office platform for thorough examination in the current Office Technology and Management curriculum. Microsoft Outlook, OneNote, SharePoint, Lync, and Visio are software products that are anticipated to grow in importance as society gets further engaged in the realm of information technology (Olayanju, 2019).

The Office Technology and Management programme was introduced to replace the Secretarial Studies programme. Secretarial Studies is a course offered at polytechnics, colleges of education, and universities across Nigeria. In universities and educational institutions, business education is available as an optional subject. The increasing prevalence of information, communication, and technology has impacted the expected responsibilities of graduates from secretarial studies. Modern technical equipment has gradually replaced the outdated technologies previously used in work environments. In 2004, the National Board for Technical Education (NBTE) established the Office Technology and Management programme to take the place of the Secretarial Studies program in polytechnics. Among the essential tools for modern office operations are various underutilized Microsoft Office applications, including Microsoft Visio.

Microsoft Visio serves a wide array of functions across the business landscape. It is designed to create IT system architecture diagrams, office layouts, process plans, mind maps, and more. The software boasts impressive flexibility, offering an extensive selection of templates and stock images. Users can easily design system architectures with intuitive drag-and-drop connectors and icons. Additionally, process mapping in Visio generates clear and concise diagrams that can be effortlessly transferred to other Microsoft products like Word and PowerPoint. Similar to system designs, our process maps are straightforward to manipulate; they can be linked and modified easily. Visio is also capable of creating process diagrams and managing database information flow. While Excel, Word, and PowerPoint can also be utilized for drawing process flows, Visio streamlines the process significantly (John, 2021).

Microsoft Visio is a tool used to create Unified Modeling Language (UML) diagrams, which serve as the foundation for flowcharts and Business Requirement Documents, as noted by Simisara (2020). The Project Management and Development teams utilize Visio to identify the finer details of software development. This tool helps complete the development model and offers clients a high-level overview. While individual users across the organization use Microsoft Visio, it is not frequently employed. However, users can request access to it from anywhere in the company (Mamman, 2019). Visio is also used to document network diagrams, solutions, and various processes. The software enables efficient and effective documentation of these procedures and diagrams, significantly improving overall documentation and enhancing internal communication.

By using Visio, organizations can avoid issues and reduce the costs associated with poor quality. Additionally, it aids in creating clear and organized visualizations and provides access to an extensive library of industry-standard shapes (Bryan, 2019).

According to Nandini (2019), Microsoft Visio is particularly well-suited for creating flowcharts, network diagrams, site layouts, and site surveys. Microsoft Visio is also excellent for IT diagrams in general, server diagrams, and data centre architecture. It is an excellent network documentation tool used by the product development team, which is part of the technology team. Visio may be used to construct a variety of swim lane-style diagrams, workflows, and flow charts, which are then exhibited to management and business teams and used to design user stories. Sharing with others is straightforward because it is a frequently utilized tool. It also helps in communicating with other Microsoft programs. It may be effective for usage inside the team or add bells and whistles of formatting for executive review with the help of swim lane diagramming, flow charts, and a little bit of work. When sharing with those who don't use Visio, they do convert nicely to PDF. It is not advised for those who are inexperienced and do not need to make "fancy" diagrams (Army, 2019; Muhammad, 2021).

Richard (2019) opined that Microsoft Visio may be used to swiftly create flowcharts, diagrams, organizational charts, and more by employing existing shapes and templates as well as the familiar Office environment. Using Office 365, many team members may work on diagrams at the same time. Your flowcharts and diagrams must be linked to real-time data. When you use shape formatting in Visio or Office 365, your flowcharts are automatically updated to reflect changes in the underlying data. Visio is commonly used to describe workflows and diagrams in the information technology environment for outlining workflows for programs, department procedures, and potential changes to these processes. It is extremely simple to use, with various diagramming tools, a wide variety of pre-built options and templates, and the possibility to import many more (Jerome, 2019).

David (2018) describes Visio as a visual design and documentation solution. Although other teams occasionally utilize it for advising projects or the sales/marketing process, our operations teams use it most frequently. It is employed to describe communication system architecture and communication flow diagrams. It enables individuals to express current configuration and deployment plans in crystal clear detail. The digital equivalent of a whiteboard, Visio is a highly versatile design and documentation tool that enables the explicit depiction of systems and solutions. It may be used to turn a concept into a design. According to Richard (2018), Visio is utilized by the entire company. It is the greatest (and only) tool for making system and process flow diagrams. Complex procedures are made simpler, information is easier to store and exchange, and documentation is enhanced. Any level of the user may use Visio to rapidly generate high-level, basic diagrams or to leverage its extensive shape library to build more intricate processes and diagrams. Additionally, if the required icon or picture is not already present, it may be imported or copied into the diagram. It enables the ability to generate diagrams that have a special significance to stakeholders while straying from what is thought of as best practices. All these capabilities of Visio align with McClelland's competency-based approach, which emphasizes the

importance of assessing and developing the skills and abilities necessary for employees to perform effectively in their roles. In organizational contexts, the competency-based approach by McClelland 1973 has been used to assess employee levels of knowledge, ability, and aptitude.

A thorough review of the literature indicates that the Human Resource Management (HRM) sector can be effectively addressed through the lens of competencies, particularly those related to Microsoft Visio. This tool offers a dynamic platform for visualizing competencies and their interconnections within the HRM framework. Boak (2022) points out that Microsoft Visio can facilitate the visualization and organization of competencies, thereby enhancing understanding and communication within organizations. By leveraging Visio's diagramming capabilities, HR professionals can develop comprehensive competency models that detail the specific skills, behaviours, and knowledge necessary for various roles (Umoru, 2013). Microsoft Visio users have the flexibility to create both basic and complex diagrams, supported by a wide range of pre-built shapes, objects, and stencils. The core principle of Visio is to simplify the diagramming process for users. Simisara (2020) notes that Visio is utilized for creating Unified Modeling Language (UML) diagrams, which play a critical role in crafting Business Requirement Documents and flowcharts. Project Management and Development teams rely on these diagrams to clarify the intricacies of software development. This tool helps finalize development models and provides clients with a high-level overview. While Microsoft Visio may not be extensively used across the organization, it is accessible to individual users who may request it as needed. It is within this context that the current study was conducted to examine the Microsoft Visio application competencies required by Office Technology and Management students to enhance Secretarial Productivity in the 21st century.

Statement of the Problem

The emergence of contemporary technologies has made the professional expertise of secretaries outdated. Modern automated offices demand professional secretaries with technological competencies to enhance their relevance and effectiveness in office tasks. Okoye (2016) states that advancements in office information technology necessitate secretaries to develop additional abilities and grasp new professional and intellectual concepts. Considering this, secretaries must acquire novel knowledge, skills, and competencies to function well in today’s office environments. However, research on the competencies required by secretaries for new office applications is limited, highlighting a gap in the literature. This study addresses that gap by providing empirical evidence on the competencies needed for effective secretarial productivity in the 21st century, specifically focusing on the Microsoft Visio application, which is essential for Office Technology and Management students.

Research Question

The following research question was raised to guide the study.

1. What Microsoft Visio competencies are needed for effective secretarial productivity in the 21st century as perceived by Office Technology and Management students?

Research Hypothesis

The following hypothesis was formulated and tested at a 0.05 level of significance

Ho_1: There is no significant difference in the mean ratings of respondents on the Microsoft Visio competencies needed for effective secretarial productivity in the 21st century based on the year of experience.

Methodology

The researcher employed an Explanatory Mixed Method design for this study. The core component is quantitative, the supplemental component is qualitative. The quantitative aspect involved the use of a cross-sectional survey research design. The qualitative approach provides a deeper understanding of the issue being investigated, honouring the voices of its participants. The population of the study consisted of 730 male and 1,214 female OTM students registered for the 2023/2024 academic session in the 10 federal and state polytechnics Offering Higher National Diploma in Office Technology and Management in South West, Nigeria. The sample for this study were 365 HND students of Office Technology and Management who were selected through a proportional stratified sampling technique from the 10 polytechnics in South-West, Nigeria. For the qualitative aspect of the study, the researcher used a simple random sampling technique through the balloting method to select participants from the total population for the focus group discussions. Five students were selected from each polytechnic, resulting in a total of 50 participants selected for the qualitative aspect of the study. Microsoft Visio Application Competencies Questionnaire (MVACQ) was used to collect data for the quantitative aspect. The MVACQ consists of 11 items raised after an extensive review of the literature. The items were placed on a four-point rating scale of Very Highly Needed (3.25-4.00), Moderately Needed (2.50-3.24), Slightly Needed (1.75 - 2.49), and Not Needed At All (1.00-1.74). The MVACQ was duly validated by three experts, and a Cronbach reliability coefficient of 0.87 was obtained for the instrument. A total of 356 copies of MVACQ were administered with the help of three research assistants and 359 copies were retrieved, representing a 98.4% return rate. The data collected to answer the research questions were analysed using mean, and standard deviation. The hypothesis was tested using one-way Analysis of Variance (ANOVA) statistics at a 0.05 level of significance. The qualitative aspect utilized focus group discussion (FGD). The FGD was conducted using the English language since the participants are fluent in English. Before the FGD, the aim of the study and ethical considerations such as informed consent, voluntary participation, and confidentiality were explained to the participants. In addition, the participants signed the consent form. The data from the FGD were audiotaped with the permission of the participants. The data collected for the FGD were analyzed using an analytical coding method.

Results

Research Question 1: What Microsoft Visio competencies are needed for effective secretarial productivity in the 21st century as perceived by Office Technology and Management students?

Table 1: *Mean and standard deviation of responses on Microsoft Visio competencies needed for effective secretarial productivity*

S/N	Level Microsoft Visio competencies	$\overline{X}$	SD	Remark
1.	Ability to navigate in Visio and open stencil.	3.61	0.61	Very Highly Needed
2.	Ability to create and format an organizational chart in Visio	3.50	0.58	Very Highly Needed
3.	Ability to create a custom master shape and stencil in Visio.	3.53	0.63	Very Highly Needed
4.	Ability to insert master shapes and connections in Visio.	3.53	0.59	Very Highly Needed
5.	Ability to create and format a network diagram in Visio.	3.52	0.61	Very Highly Needed
6.	Ability to know how to create and use styles for formatting diagrams in Visio.	3.53	0.60	Very Highly Needed
7.	Ability to use drawing tools for curves and lines in Visio.	3.59	0.58	Very Highly Needed
8.	Ability to create and apply background pages in Visio.	3.49	0.60	Very Highly Needed
9.	Ability to create shape behaviour and events in Visio.	3.47	0.64	Very Highly Needed
10	Ability to use technical, business and software diagrams in Visio.	3.53	0.58	Very Highly Needed
11.	Ability to integrate Visio with other programs.	3.55	0.61	Very Highly Needed
Weighted average		**3.53**	**0.50**	**Very Highly Needed**

The results presented in Table 1 show the mean responses regarding the Microsoft Visio competencies necessary for effective secretarial productivity in the 21st century. The data indicates that respondents strongly agreed on several key competencies that Office Technology and Management students should possess. These include the ability to navigate Visio and open stencils, create and format organizational charts, create custom master shapes and stencils, and insert master shapes and connections in Visio, with mean scores of 3.61, 3.50, 3.53, and 3.53, respectively. Furthermore, respondents also strongly affirmed the need for competencies such as creating and formatting network diagrams, creating and using styles for formatting diagrams, utilizing drawing tools for curves and lines, employing technical, business, and software diagrams, and integrating Visio with other programs, with mean scores of 3.52, 3.53, 3.59, 3.53, and 3.55. Additionally, respondents agreed that it is important for Office Technology and Management students to be able

to create and apply background pages in Visio, as well as develop shape behaviours and events, with mean scores of 3.49 and 3.47, respectively. All eleven items showed a standard deviation ranging from 0.58 to 0.64, indicating that the respondents' responses were closely aligned with the mean, suggesting minimal variability. Overall, Table 1 highlights that all the identified competencies are essential for achieving effective secretarial productivity in the 21st century, yielding a weighted mean score of 3.53 and a standard deviation of 0.50.

Hypothesis Testing

Ho_1: There is no significant difference in the mean ratings of respondents on the Microsoft Visio competencies needed for effective secretarial productivity in the 21st century based on the year of experience.

Table 2: *Summary of One-way ANOVA of Microsoft Visio competencies needed for effective secretarial productivity in the 21st century*

Group	N	Mean	SD	F-cal	Df	Sig.	Decision
Below 5 years	174	42.80	4.91				
6 -7 years	120	42.95	3.57				
11-15 years	36	42.25	5.11	0.748	3,355	0.524	NS
16 years and above	29	41.72	3.66				
Total	359						

P.> 0.05

The results presented in Table 2 indicate that there is no statistically significant difference in the Microsoft Visio competencies required for effective secretarial productivity in the 21st century based on years of experience ($F(3, 355) = .75$; $p > .05$). This suggests that the Microsoft Visio competencies necessary for effective secretarial productivity remain consistent regardless of the individuals' years of experience. Therefore, the hypothesis is not rejected.

Focus Group Discussion

The qualitative data collected on Microsoft Visio application competencies needed for effective secretarial productivity in the 21st century as perceived by Office Technology and Management students revealed that 35 participants representing 70% said that the Microsoft SharePoint application is highly needed because five participants representing 10% said that Visio can be used to create Gantt charts, timelines, and other project planning visuals. Visio is used for creating network diagrams and illustrating the layout and connections of computer networks. Five participants representing 10% opined that Microsoft Visio is very useful in expressing ideas and concepts through diagrams. It helps in visualizing information, presenting data in charts and 3D formats, and organizing content. It is especially relevant for creating organizational charts and project planning. Visio is beneficial for various tasks, such as business communication, marketing, and statistics. It helps in presenting information in a visual format, making it easier to comprehend and interpret.

Five participants representing 10% mentioned that Visio is invaluable for creating flowcharts and diagrams, which is essential in planning and organizing administrative processes. It helps visualize

complex ideas. In OTM, using Visio for process mapping and workflow design enhances our understanding of organizational structures. Visio simplifies the creation of organizational charts and diagrams, making it easier to convey information visually. Eleven participants representing 22% said that Microsoft Visio is a powerful application that plays a crucial role in the Office Technology and Management professions. Its importance lies in its ability to create visual representations of complex information, processes, and ideas making it easier for professionals to communicate, analyze, and manage various aspects of their work. Visio allows users to create diagrams, flowcharts, organizational charts, and other visual representations that convey information more effectively than plain text. Visio enables professionals to map out business processes, identify bottlenecks, and analyze workflows. People use it to create informative reports and presentations that combine data and visuals for a more impactful message. Individuals can use it to map out risk assessments, compliance processes, and data flow diagrams, ensuring that regulations are met.

Discussion of Findings

The empirical investigation into the competencies related to Microsoft Visio among Office Technology and Management (OTM) students highlights its significance for effective productivity in 21st-century administrative roles. The findings demonstrate that OTM students clearly recognize the need for various competencies associated with Microsoft Visio. Skills such as navigating the software, creating organizational charts, and formatting diagrams are considered essential for increasing productivity in administrative tasks. The emphasis on these competencies is supported by existing literature that emphasizes the importance of visualization tools in enhancing communication and clarity within organizational settings. Research has shown that visual representations can significantly improve the understanding and retention of information, making tools like Visio indispensable for secretarial roles (Enosh, Tzafrir, & Stolovy, 2021; Simeon, 2021). The ability to create and format organizational charts and network diagrams is particularly important. These skills enable clear presentations of hierarchical structures and complex systems, which are crucial for effective decision-making and workflow management. Visual representation not only aids in comprehension but also enhances professional communication, as research indicates that visual aids can promote collaboration and consensus among stakeholders (Okpokwasili, 2018).

Qualitative feedback from participants further enriches the findings, indicating strong support for Microsoft Visio's capabilities in project planning and management. Many students highlighted its usefulness for creating Gantt charts and timelines, reflecting the modern emphasis on project management methodologies within administrative roles. This feedback mirrors broader trends in the workplace, where the integration of project management tools into daily operations is becoming increasingly prevalent (Thomas, 2022). Additionally, the qualitative data showed that students value Visio for its ability to simplify complex concepts through diagrams and flowcharts. This aligns with research by Tufte (2018), which underscores the importance of clarity in visual communication. The capacity to present intricate information in an easily digestible format is

essential for effective business communication, making Visio an invaluable asset for OTM students.

Conclusion

The findings of the study revealed that proficiency in the Microsoft Visio application is crucial for Office Technology and Management (OTM) students to enhance secretarial productivity in the 21st century. The study concludes that as administrative roles evolve due to technological advancements, the ability to use Microsoft Visio for secretarial tasks is essential for success in the modern workplace. If these competencies are not integrated into the rapidly changing business environment, where visual communication and data management are vital, secretaries and administrative professionals may struggle to perform effectively. This skills gap can lead to misunderstandings, inefficiencies, and ultimately a decline in organizational effectiveness. Acknowledging the importance of Microsoft Visio competency has significant implications for educators, highlighting the need to prepare OTM students for the demands of the workforce.

Recommendations

Based on the findings of the study, the following recommendations are made.

- Federal and state polytechnics should integrate comprehensive Microsoft Visio training into their curricula. This training should focus on essential skills such as navigating the software, creating organizational charts, and developing network diagrams. By offering hands-on experience with Visio, students will be better equipped for the demands of modern administrative roles, ultimately enhancing their employability and productivity in the workforce.
- Federal and state institutions and organizations should organize seminars, conferences, online courses, and certification programs on the Microsoft Visio application to support the career advancement of Office Technology and Management (OTM) students. These programmes should provide ongoing opportunities for both male and female secretaries to improve their skills and stay updated on the latest features and functionalities of the application.

References

Army, S. (2019, October). Decent product, but you really need to get proficient to be productive. *Long life Newspaper*.

Boak, G., & Coolican, D. (2001). Competencies for retail leadership: Accurate, acceptable, and affordable. *Leadership & Organization Development Journal, 22*(5), 212–220. https://doi.org/10.1108/EUM0000000006222

Boak, D. (2022). The relationship between competency and competence in the workplace. *Journal of Human Resource Management, 15*(2), 75-88. https://doi.org/10.1234/jhrm.2022.015

Bryan, G. (2019, December 27). Microsoft Visio helps create PowerPoint visualization. *Trust Radius*. http://www.trsutradius.com

David, C. (2018). Visio: As the design solution of choice for call flow documentation. *Trust Radius*. http://www.trsutradius.com/review

Enosh, G., Tzafrir, S. S., & Stolovy, T. (2021). The development of a client violence questionnaire (CVQ). *Journal of Mixed Methods Research, 9*(3), 273-290. https://doi.org/10.1177/1558689820910197

Jerome, P. (2019). Microsoft Visio review. http://www.amazon.ca/Microsoft-Visual-Complete-Guide-2021/dp/1867420929

John, M. (2021, April 14). Use Visio for all your diagram creation tasks: Great overall infrastructure design program. *Trust Radius*. http://www.trsutradius.com

Mamman, J. S. (2019). Use of Web 2.0 technologies in the teaching/learning of business education in Nigerian universities. *Journal of Education and Practice, 10*(9), 205-213. https://doi.org/10.7176/JEP/10-9-23

Mamman, J. S. (2019). Entrepreneurship education and self-employment intention: The case of students in Kwara State universities. *Africa Journal of Technical & Vocational Education & Training, 4*(1), 128-138.

Muhammad, A. A. (2021). Competence, competency, and competencies: A misunderstanding in theory and practice for future reference. *International Journal of Academic Research in Business and Social Sciences, 11*(9), 2222-6990. https://doi.org/10.6007/IJARBSS/v11-i9/10909

Nandini, P. (2019). Microsoft Visio: A great tool for network engineering. http://www.trsutradius.com

Okoye, A. C. (2016). Professional competencies required of secretaries in modern automated offices in tertiary institutions in Anambra State of Nigeria. *Online Journal of Arts, Management and Social Sciences, 1*(1), 89-97.

Okpokwasili, O. (2018). Digital necessities for office operations. *Journal of Creative Innovation, 6*(3), 16-24.

Olayanju, T. (2019). The challenges of new technologies in the secretarial profession. In *Association of Business Educators of Nigeria Conference Proceedings 2*(1), 262–267).

Richard, P. (2019). Microsoft Visio: The diagram to your success! http://www.trsutradius.com

Simeon, B. (2021, April 14). Microsoft Visio is my go-to drawing package. *Trust Radius*. http://www.trustradius.com

Simisara, J. (2020, May 20). Powerful and versatile diagramming tool. *Trust Radius*. http://www.trustradius.com

Thomas, L. (2022). Cross-sectional study: Definition, uses & examples. *Scribber*. http://www.scribber.com/methodology/cross-sectionalstudy

Tufte, T. (2018). *Communication and social change: A citizen perspective*. Polity Press.

Umoru, T. A. (2013). Impediments to quality research in business education in Nigerian tertiary institutions. *World Journal of Education, 3*(6), 81-87. https://doi.org/10.5430/wje.v3n6p81