

# SIGNIFICANCE OF INTERNET AND CONVENTIONAL EDUCATION RESOURCE CENTER FOR SUSTAINABLE EDUCATION BY SCIENCE & ARTS STUDENTS

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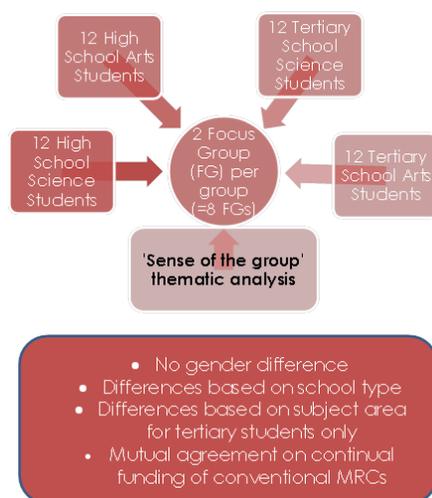
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## Graphical abstract



## Abstract

Sustainable education should make the development of an attitude of lifelong learning in students one of its critical goals. This can be achieved through the promotion of reading habits that goes beyond academic needs in student through the Media Resource Centers (MRCs) or school libraries. As such, the MRC has become a normal feature of any academic system. However, with the availability of an unlimited resource through the internet, students, especially in developed nations seems to be turning more to internet sources for educational materials, though some still wish to maintain contact with print materials. This study is exploratory and uses a qualitative approach. It is focused on a comparison of the attitudes of science and arts students in a secondary and a post-secondary institution to the use of the MRCs as a predictor of its relevance in the age of internet. The study employed 8 focus group interview involving 48 participants made up of 24 students (12 from each of the 2 groups) in the secondary school and the tertiary school. Results were analysed for themes that run across group responses. Findings show that participants do not differ on gender basis across the institutions but differ on subject area basis, though at the tertiary level only. Reasons for MRC use also differ on school type basis and secondary school participants were found to display better lifelong learning attitudes through leisure/extra-curricular reading habits than the tertiary students.

Keywords: Resource Center, Library, Sustainable Education, Science Education, Lifelong Learning, Meaningful Learning

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## 1.0 INTRODUCTION

Lifelong learning must be the goal of sustainable education. This informs the necessity of developing a positive attitude to learning through reading. The provision of academic and non-academic resources within the school system is aimed at this. Hence, the ubiquitous presence of the Media Resource Center (MRC) or library at faculty, departmental or whole institution levels in practically every institution of learning. These centers provide access to materials

for leisure, learning as well as research. The presence of the library is almost as old as modern education itself. However, developments in technology and improved access to the internet have transformed the way things are done in every sector of human life, including access to information. Hence, students now have the option of the internet as a ready and easy source of information in addition to the conventional, age old libraries. The resulting situation is such that the use of the conventional library by many students has greatly reduced.

It is however unclear what factors contribute to these effects as studies have not reported much on them. Studies have also focused on the impact of the availability of online resources on the use of print materials and a number of interesting results have been reported though mostly in settings where students have access to the internet within the school system and with MRCs that can be accessed online.

The impact of the internet on the use of the conventional MRC by students in developing nations is however not fully explored. In these settings, school-based internet is not readily available and access to the internet is still relatively unaffordable. The comparative effect on students based on discipline or level of education have also not been focused by available studies.

A number of quantitative studies have been conducted on the use of the library [1, 2] but reports are scarce on qualitative inquiries on this from developing nations. Hence, this study employs a qualitative approach to evaluate the contributions of gender, educational level and subject area to students' use of the conventional library in the age of internet. The implications for the upgrade of new libraries or establishment of new ones are also discussed.

### 2.1 Objectives of the Study

Internet access is still a luxury in most developing nations and ICT tools are also not yet readily affordable; hence, the study looks at students' attitude as a predictor of the future of the use of conventional libraries. The study also aims at providing a means of advising the proper set-up of conventional MRCs. This becomes more imperative with the creation of new institutions of higher learning in the country. The provision of a standard MRC remains a major accreditation item for these institutions.

The study compares the current use of the conventional media center and the internet as sources of academic information among students. Comparison is based on subject areas (Arts vs Science), level of education (secondary vs post-secondary school) and gender (male vs female). The study provides answers to the following questions:

1. Do students still make use of conventional MRCs?
2. In what way has access to online resources affected the use of conventional MRCs?
3. Do students differ in their use of online learning resources and conventional MRC based on their gender, subject areas and educational level?
4. What are students' perceptions on investment in a conventional MRC in the age of ICT?

## 2.0 LITERATURE REVIEW

### 2.1 The Media Resource Center

The MRC is known by many names. It is simply the school library, the resource center in certain cases or the media center, the school information center, the learning resource center, etc. All these underscore the significance of the MRC as a source of information. The history of the library dates back to ancient times though clear data are not available on the first public libraries. However, the earliest known librarian, recognized by the name Amit Anu had been known at the royal library at Ur as far back as around 2000 BC [3].

In most tertiary institutions, teaching and learning places a demand on learners to seek information beyond the classroom or the teachers' lecture note. This are required for the purposes of assignments, projects or research. Students are therefore 'compelled' to make use of the RMC. However, with the arrival of the World Wide Web, making an almost unlimited amount of information and materials available, students are beginning to turn more to online sources to fulfil their academic and research needs.

### 2.2 MRC Use and Academic Performance

Results are divergent on whether or not there is a correlation between academic performance and MRC use. While some researchers suggest a positive correlation [4], some suggest there is none [5]. However, there is general agreement on the importance of libraries in the achievement of institutional academic goals. Hence, the media resource center (MRC) or school library has become a normal feature in any academic institution. This underscores the roles of media personnel in the day-to-day running of the MRC.

In an era of information explosion, the MRC has become all the more important and central to education [2].

### 2.3 The MRC, the Internet and Students' Attitudes

The choice of educational and research materials for MRC collection used be the decisions of the librarian and the school administrative management. However, with the changing times and access to the information superhighway, the arrival of the World Wide Web has redefined many roles in corporate systems. Students are more active in making decisions on their academic collections and depend less on the school or the librarian [6]. Access to educational materials has become easier as internet becomes more accessible and affordable. The internet provides access to an almost unlimited source of information including books, journal articles and other useful materials including graphics, videos, etc.

Apart from the ease and convenience [7] with which these resources can be accessed, the issue of low cost as well as availability of updated and very recent materials make them all the more attractive. The fact that not just printed materials can be accessed but also high quality multimedia materials (known to have positive influence on learning) seems to make the use of online learning resources a preferred option among 21<sup>st</sup> century students [8].

As a result of these advantages, more students have shifted their focus from the use of the conventional MRCs to online libraries and other online learning resources. There is evidence that time spent by students on the Internet and time spent studying are on the average, about the same [5]. This fact is not lost on librarians or media personnel and other educational stakeholders. The implication being that over time, one wonders if the conventional library may become obsolete and almost irrelevant to learners and the relatively high set-up and maintenance cost go to waste.

This calls for an investigation of students' use of the conventional MRCr as a means of accessing its current relevance. This can also provide useful and important information to media personnel, school administrations, government and others concerned with the MRC to make informed decisions.

The extent of students' current dependence on online sources can also be seen in the results of other studies focused on internet-based resources. Seeholzer & Salem [7] in their study on mobile web and MRCs reported that about 40 million American internet users (39% population) access the internet on their mobiles. They found that the participants show a greater desire to use mobiles to access resources than the researchers envisaged. The participants were also found have reference services, research databases and library catalogues on their list of desired platforms.

### 3.0 METHODOLOGY

This study is exploratory; it adopts a qualitative design to provide real information regarding the focus of the study. Students are constantly bombarded by surveys from time to time due to the ease of administration and data collection/analysis. However, this sometimes fails to provide reliable information due to the limitations of quantitative data to provide information not easily captured in a survey.

The study qualitatively examines the relevance of the physical resource center in the age of ICT tools to make recommendations for the establishment of modern MRCs especially in developing nations.

#### 3.1 Participants

Participants consist of 48 students made of 24 students each from a secondary and a post-secondary institution in southern Nigeria. The 24 respondents from each group consist of 12 students

from the sciences and 12 students from the Arts & Social. The distribution of respondents is summarized in Table 1. The secondary school students are from an urban private secondary school whose characteristics (access to the internet, etc.) are similar to those of the tertiary institution.

**Table 1** Distribution of Respondents

Inst	Subj	Gender		S-Tot	Grp-Tot	Grd-Tot
		M	F			
Secondary School	Science	3	3	6	12	24
	Arts&Soc	3	3	6		
	Science	3	3	6	12	
	Arts&Soc	3	3	6		
Tertiary School	Science	3	3	6	12	24
	Arts&Soc	3	3	6		
	Science	3	3	6	12	
	Arts&Soc	3	3	6		
						48

LEGEND: Inst=Institution Type; Subj=Subject Area; M=Male; F=Female; S-Tot=Sub-Total; Grp-Tot=Group Total; Grd-Tot=Grand Total; Arts&Soc=Arts & Social Science

### 3.2 Instrumentation

Data collection was done using the Use of Media Resource Center (UMeRC) Protocol developed specifically for the study and content-validated by expert educators. The UMeRC protocol is a 15-item, 4-section instrument. Each of the four sections cover items related to one of the research objectives as regards the use of the conventional media center vis-à-vis online/internet resources. The protocol was administered in eight (8) focus group sessions with 6 participants in each session. There were 2 sessions each for the science students and 2 sessions each for the arts students, that is a total of 4 sessions per type of school or per subject area.

There were a total of 15 items which provide the question prompts for the focus group. The 15 questions are divided into 4 groups as shown in Table 2 with each group focused on the questions raised in the study. The sessions were conducted in a room with comfortable sitting space and within the same period of time. The tone of the conversation was informal to encourage openness and participation. The language of conversation was English, which is the regular language of instruction for all the respondents.

### 3.3 Data Analysis

Thematic analysis using inductive content analysis based on coding themes as developed and used by similar studies [6,1,2] was employed. To simplify the analysis, the sessions adopted [7]'s 'sense of the group' idea to provide a group summary so that rather than focusing on variations within the group (differences in individual responses), the analysis will focus on differences between the groups. Responses

are analysed for themes that run through the groups based on emergent themes from related

**Table 2** Items on the UMeRC Protocol

S/N	Focus	Prompt Items
1	The attitude of pre-service teachers to the use of conventional MRC/libraries	How often do you use the school library?
2		What is your reason for this?
3		How often do you use the internet for academic-related work? Is your institutional library accessible through online means?
4		How do you access the internet? How cost-effective is it?
5		Do you think the availability of the internet has any effect on your attitude to the library?
6		In what way?
7		What are your reasons for choosing one over the other?
8		What are your major considerations for choosing where to study or access academic information?
9	Whether students differ or not in the effect of the availability of online learning resources on the use of conventional MRC based on whether their subject areas.	Could your study area (science/arts) have had any effect on your choice?
10		What types of materials do you usually access (texts, video, etc.)
11		Which of the conventional library or internet is most suitable for your subject area?
12		Why?
13		Do you think the government or school should continue to invest heavily in the physical library?
14		What are your reasons?
15		What recommendations will you make if you are in position to decide regarding this issue?

quantitative studies and preliminary informal discussions.

To provide a concise description of findings, the results of the study were discussed based on the research questions raised in the study rather than on the basis of the question items on the protocol. Hence the findings are discussed under four (4) sub-headings in line with the research questions or objectives. That is, students' attitude to the use of conventional MRC (physical library), effect of access to online resources on the use of the conventional MRC, differences in students' preference of MRC based on subject area and the significance of heavy investment in conventional MRCs.

### 3.4 Procedure

An informal pilot session was conducted before the main sessions to provide information on adjustments and challenges that may come up during the main sessions as well as the average time that may be required to complete one focus group. To ensure reliability of results, the same procedure was employed during the sessions. The use of a standard protocol also contributed to the ensuring consistency. The same questions were used in all the sessions; differences only arose in the use of follow-up questions, however, the effect were not significant as indicated by the uniformity of responses in the various sessions.

## 4.0 RESULTS

The focus group transcripts were analysed for themes that were consistent across all sessions based on answers to the 15 items developed for the study. Other emergent themes were also noted when they occurred in more than 2 of the sessions. The basic coding scheme for the focus group is shown in Table 3

### 4.1 Attitude of Students' to the Use of Conventional MRCs

A number of trends were noticed in the responses to attitude to the use of the library. Though both groups agreed that they prefer the use of internet to the conventional MRCs, the secondary school students were found to use the library more often than the students in the post-secondary school.

'yes, I read textbooks and comics'

'I do my assignments when I am free'

'I like to read the storybooks anytime I'm free'

'when we have no classes or the teacher is not available'

'I read about new things in the encyclopaedia'

'I borrow storybooks to read at home or during vacations'

The tertiary students use the library for purposes including 'assignments', 'projects', 'group work' and are more frequent towards examination periods. It is also worthy of note that unlike the younger counterparts, they do not identify reading comics, storybooks or encyclopaedia as things they do in the library. This obviously indicates they are less interested

in leisure reading probably because there is a higher academic demand on them. This may not really be a positive thing considering the fact that a culture of reading widely, not just within a particular subject

area, is necessary for all-round intellectual development.

**Table 3** Response Coding Scheme for Focus Group

Code	Description
Access	Internet is easy to access,
Availability	Internet is readily available, no closing time
Convenience	It is more convenient to copy texts than typing
Time	It is less time-consuming to use internet
Search	It is easy to search for materials through internet
Both	Respondent would like to use both internet and physical library
Direct	You can go directly to the material you need than flipping through pages of books
Accessibility	Comments about how one could check out books and other materials without having to go to the actual library
Staff	It is easier to be able to do one's work without depending on a staff
Cost	Internet is costly, it is cheaper to use free books
No Internet	No internet in the library
Services	Other stationary services are not available, you cannot print out from materials except you take outside
Computer	Enough computers are not available to students
Speed	Generic comments on how internet can help to work faster
Leisure	Use of the library for leisure purposes
Assignment	Teacher-given assignment that requires going to the library

The tertiary students use the internet far more than the secondary school students. They actually only use the library when they have to consult a particular text for their academic work either based on the teacher's recommendation or when a reference text is not accessible on the internet. This trend was found to be associated with two main factors: the issue of affordability of internet connection and the fact that the MRC does not seem to be able to meet the needs of the tertiary school students.

The high school students used expressions like:

'they (parents) don't allow me (to use the internet) often because it is expensive'

'we (children) have to get permission to use the internet'

'I do not have a personal laptop or internet connection'

When asked whether they will still use the library were internet connection to be readily available, they said 'yes, I will still read comics and storybooks',

'I will still read encyclopaedias'

'I will still use the library during breaks or when the teacher is not available'

The responses show that leisure reading is important to the students.

Both groups agreed that they will prefer the internet to conventional MRCs. Similar expressions were made by both groups regarding this:

'it is more convenient to use internet',

'it saves time',

'it is easy to search for topics or materials on the internet'

'it is easy to find what you are looking for'

'you can just print out the material to read later'

A few of the students, and surprisingly, more from the secondary school will prefer to have both internet and conventional MRCs. They gave reasons including

availability of certain types of materials and the fact that 'sometimes, you just prefer to read printed material'. According to them,

'some materials are not free on the internet'

'they may ask you to buy or subscribe'

'it is better to have both'

'it is good if I can get what I want instead of asking help from a librarian who may not want to help'

On the issue of why they are not too favourably disposed to the conventional MRC, the tertiary student gave reasons including the need for speed, the attitude of staff, the fact that there is no internet connection or other stationery services in the library as well as non-availability of enough computer systems for student use.

'it is easier to access the internet, no need for permission'

'internet has no opening or closing time'

'you can use (internet) anytime'

'the staff are not helpful most times'

'there is no internet in the library'

'many of the books are too old'

'no (stationery) service in the library'

'if I can find it (materials needed) on the 'net, why go to (the) library?'

According to respondents, library will be more attractive if internet connectivity is available to students. They could use such facility during school hours for their academic assignments or other projects. Both groups are however more favourably disposed to the use of the internet which according to them is easily accessible, has no closing hours, is more convenient and saves times as user can easily copy texts rather than type them all over. The students used expressions like:

'it is easy to copy and paste than typing'

'it (internet) saves time when you are working'  
'no closing or opening time, you can use anytime'

#### 4.2 Effect of Online Resources on the Use of the Conventional MRCs

Comparison of students based on the effect of the availability of online learning resources on the use of conventional MRC.

##### 4.2.1 Differences based on Gender

No specific trend was noticed on gender basis. Participants were similar in their responses whether they are male or female.

##### 4.2.2 Differences based on subject areas

Respondents in the secondary school showed no difference in their attitude based on subject areas. The use of the library was on similar basis for both students in the arts/social science and the sciences. They were all interested in leisure reading than their senior counterparts and both groups expressed the same opinion on internet use, accessibility, affordability and merits.

For the tertiary institution students however, students in the arts and social sciences appear to use conventional MRCs more. For them, textbooks still have high relevance in their day-to-day academic work. Their reference materials are usually texts by specific authors which are not freely available on the internet in most cases. They may be referred to books by certain authors or some kind of corporate information or report.

'I don't have a choice only if every book is on internet' (Language student)

'you have to buy novels or use from the library' (Literature student)

'reports or other important information are only in the library' (Management student)

'you cannot buy all the books and they are not on internet' (Language student)

'our types of materials are better found in the library' (Fine Arts student)

##### 4.2.3 Differences based on Institution Type

As discussed above, both groups differ in their use of conventional MRCs. While secondary school students use MRCs more, it is also to be noted that apart from academic purposes, they also use MRC for leisure reading. The tertiary students on the other hand will rather use the internet which though, is more expensive, meets their needs for speed, accessibility and convenience. They are also not into leisure reading as their junior counterparts and will rather have the internet than conventional MRC except if the MRC is equipped with internet facilities and computers. Even at that, their reasons for using the library will be more to access the internet for useful academic material.

In answer to a follow-up question on why the need for MRC since internet can be accessed outside the MRC, they opined that the MRC will become more relevant if it is accessible through the internet as they can search for what they need online and go directly for it rather than wasting time looking for a particular text. They also noted that reading materials may make reference to texts that are available in the library and they can easily check through the library link, locate and read up the text immediately. This is to them a more effective way to study.

#### 4.3 Perception of Students on Investment in Conventional MRC in the age of ICT

Respondents were unanimous in agreeing to the importance of continuing to maintain conventional MRCs in schools though the reasons given are quite diverse and poses a great challenge to managers, librarians and other educational stakeholders. Reasons given include:

'it will provide a place for reading'

'good materials can be accessed by students'

'(being in the MRC) makes you feel like reading'

'the atmosphere (MRC) motivates you to study'

Respondents however feel the MRC will be appealing to students only if internet connectivity and computer systems are provided and more especially if the institution's MRC is accessible online, if the operating times are more flexible and arrangement is made for stationery services especially printing, photocopy and scanning. Regarding operating hours, student reported challenges including the following:

'they (school MRC) have closed by the time I finish with lectures'

'they close too early'

'they (school MRC) should stay longer than lecture times'

'they (school MRC) are not available during weekends when we (students) need them'

'they (school MRC) are not there for students...maybe staff'

'we are only free on weekends and they (school MRC) are closed'

#### 4.4 Emergent Issues

Other than the issues focused in this study, three other issues worthy of note emerged from the responses.

##### 4.4.1 Non-academic/Extra-curricular Reading

The secondary school respondents were found to engage in leisure or non-academic readings as they reported reading novels, comics and even encyclopaedia. They are more exploratory and diverse in their approach to reading and they obvious are more prepared for lifelong learning than the tertiary students. The only tertiary students who

reported accessing novels do so because the novels are academic materials and the reading is not for leisure.

This situation seems worrisome as senior students would have been expected to have a more positive attitude to reading for the display of lifelong learning attitudes. Considering the time the average tertiary school student spends on social media and computer games, it stands to worry that reading is not a practice among respondents. This situation calls for pragmatic approaches on the part of school administration and teachers as well as MRC personnel to develop programmes and projects to encourage students in tertiary schools to develop extra-curricular reading habits and to engage in leisure reading.

#### 4.4.2 Attitude of MRC Personnel

Respondents reported the 'attitude of MRC personnel' as a reason for not being interested in using conventional MRCs. They are discouraged by the lack of willingness on the part of the staff to provide the required help. The MRC management should look into this and through training programmes, incentives as well as appropriate policies and evaluation programmes encourage more positive attitudes on the part of their staff.

#### 4.4.3 Access

MRC operating hours were not convenient for the use of students especially in the tertiary school. The center was opened and closed within the regular office hours and the same time when students are engaged with classroom work. Management needs to look into this especially for tertiary students who have to do major academic work including projects after class hours

## 5.0 DISCUSSION

This section provides a discussion of the findings in relation to the objectives and research questions for the study. Sub-sections are focused on the objectives.

### 5.1 Students' Attitude to the Use of Conventional MRCs

Respondents demonstrated differences based on their responses. While the secondary school students seems to be making more use of the conventional MRC, albeit, more for leisure reading, the tertiary students use it less because its services does not seem to meet their needs. They turn more to the internet which apart from providing a wide range of materials also meet their needs in terms of speed, convenience, access. This group of respondents were however found to differ based on their subject area as those in the sciences use the MRC much less

than their Arts & Social Science counterparts who seem compelled to make use of the MRC because of certain types of materials that are not easily accessible on the internet.

This position follows the same argument put forward by [5] who found academic challenge is a key factor that influences MRC use. It is obvious from the responses of participants that were it not for the need that is not easily met by online resources, even the group of Arts & Social Science students would have taken to the internet like the colleagues in the sciences.

### 5.2 Effect of Access to Online Resources on the Use of the Conventional MRC

Convenience, speed and time were the important factors noted to exert the strongest influence on respondents' preference for the internet. Subject area was also found to play an important role as students in the Arts & Social Sciences tend to use the conventional MRCs more than those in the sciences.

The study shows that despite the availability of internet and all the advantage it offers, students still use the library for academic and reference purposes. From a study regarding the effect of ebooks (internet resource material) [6], though student shows a higher degree of interest in using internet-based book than the researchers anticipated, students still want to continue to use print books especially for research purposes.

According to another study [9], despite the fact that internet has become ubiquitous in academic settings, students in the Arts and Social Sciences still rely on 'monographs and audiovisual materials' for academic purposes. This information can assist in decision-making regarding new library set-ups or upgrading. It can provide librarians a better picture of the kind of materials that should be stocked based on the need across disciplines.

### 5.3 Participants' Perception of the Significance of Heavy Investment in Conventional Mrcs

It is obvious that the reason for students' preference for the internet is based mostly on convenience and speed as well as access. Respondents agree that conventional MRCs are a necessity, however, it should be properly equipped to meet the convenience and speed needs of students. Another very important issue that runs through responses is that of access. MRCs operating based on office hours are obviously not designed to meet student needs as these are students' lecture hours.

For high schools, this arrangement may be proper due to the age and needs of the students and the fact that they access MRCs more for non-academic or leisure purposes. However, for students in a tertiary institution who have a greater need for academic reading for assignments, presentations and projects, the school needs to look into access issues vis-à-vis stakeholders' needs. Investment in conventional

MRCs should therefore be made based on prevailing stakeholder needs and in line with currently obtainable global standards.

#### 5.4 Limitations of the Study

As is usual with qualitative data from sources like interview or focus groups with limitations on external validity, the results of the study may not be generalized to populations other than the studied one. However, the findings can easily be applicable to similar populations operating in the same settings as the studied group. The findings of the study will be useful to advise MRC upgrades or new set-ups in developing nations.

## 6.0 CONCLUSION

### 6.1 Summary of Findings

Findings from the study show that respondents do not differ on gender basis but they do on subject area and type of institution bases. The emergent issue of leisure reading also deserves attention as lifelong education is being encouraged and this is only achievable through the development of a reading habit that goes beyond classroom academic demands. The secondary school students (rather than the tertiary students) seem to be walking in the right direction. However, it cannot be ascertained if this attitude will be carried on into their post-secondary education. It should also be noted that it is important for schools and librarians in developing nations to learn from the experience of others especially in developed settings to improve on services provided by MRCs. In the words of [5], 'a time-honored improvement strategy in higher education is to identify high-performing organizations, find out what they do well, and adapt these promising practices for use in other settings'.

### 6.2 Suggestions for future studies

This study was carried out with a non-university tertiary institution and a private secondary school in an urban setting. Learners are more exposed and leisure reading is common among respondents. Future research could use a mixed approach or include focus groups with teachers, library staff, and learners in different settings and socio-economic backgrounds.

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