Adopting Holographic Technology and Virtual Reality into the Dental Curricula

Gerald Davis II, D.D.S., M.A.
Me Maharay Medical College, School of Dentistry

ABSTRACT

& HYPOTHESIS

We hypothesize that the Holographic Simulation Center will help students integrate information in a unique and interactive way, thereby improving their critical thinking and critical decision-making skills, as well as their overall performance in the dental curriculum.

CURRENCE INTEGRATION TIMELINE BASED ON TECHNOLOGY INTEGRATION MATRIX

<table>
<thead>
<tr>
<th>TECHNOLOGY INTEGRATION MATRIX</th>
<th>Activity</th>
<th>Collaborative</th>
<th>Constructive</th>
<th>Authentic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry</strong></td>
<td>Student technology tools to create new information to their prior knowledge by learning to passively receive information</td>
<td>Students use technology tools to collaborate with others on new information</td>
<td>Information delivered to student</td>
<td>Students use technology tools to link learning activities to the overall learning experiences, rather than moving from one instructional setting to another</td>
</tr>
<tr>
<td><strong>Adoption</strong></td>
<td>Conventional procedural use of tools</td>
<td>Collaborative use of tools in conventional ways</td>
<td>Guided, conventional use for building knowledge</td>
<td>Use considered the world outside of the instructional setting</td>
</tr>
<tr>
<td><strong>Adaptation</strong></td>
<td>Conventional independent use of tools</td>
<td>Collaborative use of tools</td>
<td>Independent use for building knowledge</td>
<td>Guided use to interact with some meaningful content</td>
</tr>
<tr>
<td><strong>Transformation</strong></td>
<td>Choice of tools and regular use for collaboration</td>
<td>Choice of tools and regular use for collaboration</td>
<td>Choice of tools and regular use for collaboration</td>
<td>Flexible and extensive use of tools in plan and interface</td>
</tr>
</tbody>
</table>

**ABSTRACT**

**Characteristics of the Learning Environment**

- Blue: Yr. 1
- Purple: Yrs. 2
- Green: Yrs. 3-4
- Black: Yr. 4

Integration process will occur in the curriculum.

**Meharry Medical College Goals:**

- Develop additional computerized for primitive 4D technology in the School of Dentistry.
- Develop additional computerized for primitive 4D technology in the School of Dentistry.
- Establish a holographic simulation center.
- Develop additional computerized for primitive 4D technology in the School of Dentistry.
- Enhance digital patient information with holographic technology.
- Establish and implement a three-dimensional (3D) learning environment.
- Develop additional computerized for primitive 4D technology in the School of Dentistry.
- Establish a holographic simulation center.
- Develop additional computerized for primitive 4D technology in the School of Dentistry.
- Enhance digital patient information with holographic technology.
- Develop additional computerized for primitive 4D technology in the School of Dentistry.
- Establish a holographic simulation center.
- Develop additional computerized for primitive 4D technology in the School of Dentistry.

**OUTCOMES**

Outcome measures for the successful integration of holographic technology into the curriculum include:

- Improved critical thinking and critical decision-making skills
- Improved overall performance in the dental curriculum
- Improved critical thinking and critical decision-making skills
- Improved critical thinking and critical decision-making skills
- Improved critical thinking and critical decision-making skills

---

**Collaboration & Resources**

Our timeline for accomplishing the integration of holographic technology is based on the Technology Integration Matrix established by the New York State Department of Education. Financial Resources will be provided through the following sources:

- Letter of Support (LS) ($200,000);
- Non-LS ($100,000).

In the event of additional required funding, Meharry Technology Taskforce Budget will provide the remainder. Meharry Technology Taskforce Budget is based on the Technology Integration Matrix established by the New York State Department of Education.

---

**Meharry Medical School of Dentistry Timeline**

**Year 1 (2016-2017)**

- June 2016: Received approval from the Title VI Federal Program
- July 2016: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- August 2016: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- September 2016: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- October 2016: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- November 2016: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- December 2016: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.

**Year 1 (2016-2017) (Cont’d)**

- January 2017: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- February 2017: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- March 2017: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- April 2017: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- May 2017: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- June 2017: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.

**Year 2 (2017-2018)**

- January 2018: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- February 2018: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- March 2018: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- April 2018: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- May 2018: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- June 2018: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.

**Year 3-5 (2017-2019)**

- January 2019: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- February 2019: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- March 2019: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- April 2019: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- May 2019: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- June 2019: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.

**Year 6-8 (2020-2021)**

- January 2020: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- February 2020: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- March 2020: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- April 2020: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- May 2020: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.
- June 2020: Established an Institutional Review Board (IRB) to conduct IRB-approved research studies.

---

**RESOURCES**

- Information passively received
- Individual student use of tools
- Guided, conventional use for building knowledge
- Independent use for building knowledge

- Conventional procedural use of tools
- Collaborative use of tools
- Independent use of tools
- Choice of tools and regular use for collaboration

- Information received and this team has begun partnering with additional institutions in hopes of having a collaborative environment for the students to learn in. This will include the understanding of different concepts nationwide.

- Students will be allowed to explore their own preferences and will evaluate results rather than simply completing assignments without reflection.

- Information received and this team has begun partnering with additional institutions in hopes of having a collaborative environment for the students to learn in. This will include the understanding of different concepts nationwide.

- Students will be allowed to explore their own preferences and will evaluate results rather than simply completing assignments without reflection.

- Students will be allowed to explore their own preferences and will evaluate results rather than simply completing assignments without reflection.