

7KH, QXHQFH RI 6 RFLDOO HGLD RQ \$ GRÖMVFHQV ØHSLOJ ' XUDMRQ DQG 4 XDDW

5XRMRQ / LX

7KH\$ ILLDNG, QMLDDRCO GFKRCR 6KHQ KHQ 6KHQ KHQ &KLOD

\$EWMDFW7KLVUHYZ ZLÖMHNVRLQYXMMDMZKMHUVRFLOPHGD KD/DQLQXHQFH RQVØHSLOJ GXUDMRQ
DQGTXDÖW DQGVRZKDVH]VQWRFLOPHGDHIFVUHLGQVHSHFLDÖ WHÖDJHUJ]ØHSLOJ \$QLCFUHDLOJ
QXP EHU RI VMGLV KDYH I RXGGRV/VND/VNHWP HVXGQV/VSHGLO VRFLOPHGD LV/UMLOJ GUD DMFDÖ GHVVR
VNH QFHWDV] XH VNH IHDU RI PLVLOJ RAVDQG VNH GHMLUH VR VDDI DQG VKDUH VRP HMLQJ ZLVK RMLV/
&RQHTXHQÖ SÖQV RI SHRSÖXHV VRFLOPHGD QR P DMVUVLV/ QFHWDV] RUGRVDQG VNH Z RXG SUREDEÖ
FKFN VNHU VRFLOPHGD DFFRXQVUHTXHQÖ DVQJKVMLQPH PLVLOJ VRP HMLQJ FÖ P DNH VNH IHO
HP EDUWVHG VR VNH XHRI VRFLOPHGD KD/DÖHGG ÖHVD GHS LQXHQFH RQFHUMLQJURXS RI VNHÖDJHU/DG
DÖR VRP H] RXQJ DQÖW 1 HYUMHÖW U SHRSÖVNHVH DG/DDW HV/RI VRFLOPHGD DQGXHVVLQV VNHUWKV
ZD XGGHU JUHDVHD GLVSLÖQH LVLV SURRXGÖ FRQVHÖV/DQGG SUDFVDDOIRU LGYLGÖD DQGD KYH QR
CHJDYH HIFVRQVØHSLOJ GXUDMRQ DQGTXDÖW

, QMRGXFMRQ

: LVK VNH GYHÖSP HQARI VFKQRÖ] VNH UÖH RI VRFLO
PHGD LV/ EFRP LQ] P RUH DQGP RUHLQXHQÖ, VLV VNH
EXVLGLFXÖXV/VND/DÖ RWQR RQH FÖQ ÖYH Z LVPRV/VRFLO
PHGD 7KLV LV D VNK VMDM RX KDYH VR GR VRP H
WÖP Z RUV ZLVK VRFLOPHGD DQG \RX SHUKSV DÖR XH
VRFLOPHGD IXVVR VDDI VR \RXU IUHGG/ VR VKDUH \RXU
GÖD QH 3HRSÖGRVRCÖ XHVIVGULQJ VNHGD EXVDÖR
DVQJKV 7KH KRXU RI XVLQ VRFLOPHGD LV JURZLQJ
GUD DMFDÖ GHVVR VNH LCFUHDLOJ QXP EHU RI QIUHQV
VRFLOPHGD SÖMFLVP VFK DV: HFÖD, QMDUÖP DQG
VDSFKD/7KHUHDURHJU EÖRQXVH/RI VRFLOPHGD
VNV DQGFÖSKRQV Z RÖZ LGH> @0 RUHYU VNHUHDU
LCFUHDLOJ VSHV RI HÖFWRQF GHMFLV SURYLQJ P RUH
PHGDV)RU H] ÖP SÖH LVLV DYÖDEÖH VR FÖDVRQ VRP H
VP DVZ DFKHV DQGVNV DÖR LCFUHDV VNH VPH RI XVLQ
VRFLOPHGD 7KDLV VR VD ÖP RWQR RQH FÖQ ÖYH LQ
LVÖMRQ E YLVÖDRI VNH GYHÖSP HQARI VRFLOPHGD
DQGVNH KLK HÖDJH HQARI XHV/ ' XHVR VNHÖVRI XH
DQGRUVÖEÖW RI VP DVSKRQV DQLCFUHDLOJ QXP EHU RI
VNHXHV/VDVFLSDMLQJ KVP HÖFVYLVH/> @
) RUP RVUHLGQV VRFLOPHGD LV FRQLGHUHG P RUH
SRVQVDDÖ DQGFVYVNDQ FLJDUHVM/RQ JURXG/RI EHÖJ
SRXÖU ÖP RQJ DÖDJH > @HFQVVMGLV LQGFDM VNV
IHDU RI PLVLOJ RXW)RÖ 2 ZKFK NHSV SHRSÖXS
ÖM XVLQ VRFLOPHGD P Ö FÖVH VØS SUREÖP V DQ
DIFV VNH TXDÖW RI VNHU VØS > @KFNQJ P HVDH/
EHRUH JRLQJ VR VØS KDV DÖHGG EFRPHD QFHWDV]
KÖELV \$VD UHXÖV VNH FRP SXÖRU XH RI VRFLOPHGD
LQXHQFH/SHRSÖ]V VØHSLOJ VPH DQGVØHSLOJ TXDÖW
VLQIIFÖQÖ 1 RVMÖD VRFLOPHGD XH KYH D JUHDV
SRVÖEÖW VR FRQVEXM VR LQFLGQV RI GLYUHG RU
SUREÖP DNF VØS ZKFK PDNHVXGQV/HÖSURI RXGÖ

H] KÖVMG VNH IÖRZLQJ ÖD > @ RULQMGFH LVKD/EHQ
GRMGVNDV RI UHSRQGQV DFFWVG VRFLOPHGD LQ
VNH PLQVM SURU VR JRLQJ VR EHG ZKFK ÖG VR
UHVW QJKW > @RQHTXHQÖ LVLV HYLQVNDV VNH D
ÖVRI SHRSÖ]V ZHÖEHQ KDYH EHQ DÖHGG LQXHQFH
E VRFLOPHGD EHFÖKHRI VNHUHDQFH RQVRFLOPHGD
DQGDGRÖVH/DUH VNH JURXS RI SHRSÖEHQ LQXHQFH
VNH PRVHURXV

6 ØHS TXDÖW P HDVXUH HQW

7KH VØS TXDÖW XVDÖ UHSVHÖV KRZ GHS \RX VØS
DQGRZ \RX KHS \RXVHD EHQ UFRYHUH IURP VNH
ZKÖH ÖD WÖGHW ,I \RX IHOHQV HMF DVUD ZKÖH
QJKV VØS VNV P DQV VLV LV DØS RI KLK TXDÖW
&XUVQ VNH XH RI LQMLQWÖGG VRFLOPHGD JURZV
GUD DMFDÖ DQGLQXHQFH E LQMLQWÖGG VRFLOPHGD
LV/VNH VØS TXDÖW 7HÖDJH VZKR VSHG P RUH VPH RQ
VNH LQMLQVADG VRUVM VØS GXUDMRQ ÖMU EGHV HV
DQGLCFUHDV ÖD VPH ZHÖUHQV HÖD HZ DNHS VPH V/
DQGRÖHU VØS GXUDMRQ/ > @ , Q RQH SURU VMG
LQRYLQJ VFRQÖV VFRÖ SXSLV DJHG
UHVÖFKHV H] ÖP LQHG VNH UHÖMRQ KLS EHÖHÖQ VFLDÖ
PHGD XH DQGYÖURXV DSHFR RI DGRVHÖV ZHÖEHQ
LQFÖLQJ VØS TXDÖW DQ LHV GSHVMRQ DQGVH
HVMH 7KH VMG HP SÖH HG D UÖQH RI PHVUH DQGV
TXHMVRQ ÖUH VR DVH VVH VYÖDEÖ 7KH SÖV VSDÖW
FRP SÖVMG VNH DVH VPH HQV VMLQV FÖW RURQÖH ZLVK
HMLFDÖ SURIÖDÖJ DQGR IRU VNH VMG 7KH 3LVEXJK
6ØS 4 XDDW , ÖG] 364, ZKFK FRQLVVRI VÖ
UDMG TXHMVRQV Z DV XVM] HG E VNH UHVÖFKHV VR JÖXJH
VNH TXDÖW RI VNHU VØS \$ VFRUH KLKHU WÖQ RQ VLV
LQGFDRU LV VHQ DV EHQ V P SVRP DNF RI SRU VØS
ZKHUV KLKHU QXP EHV LQGFDM Z RUV VØS \$ Q LHV

DOG G-SUHWLRQ DUHP HDXUHG XLQJ VWH+ RSLWDS\$ Q LHW
DOG' HSUHWLRQ6FDQI+\$' 6 ZKLFK KD/VZR VAEVFDQ/
7R JDXJH ERK JHGHUDDOG HYHLQJ VRFLOP HGD XVDJH
VZRP HMFVZHUHFUDMG

7KH VMG GLVFRYHUHG D FROQ-FWRQ EH-ZHQ VRFLO
PHGD XVHDG DQXP EHURI SRVWYHIHDMUH/RI ZHQHW
3RRUJU VQHS TXDQW ZDV QONHG VR LQFUHDVHG RYHUD
VRFLOP HGD XVH QJKWMP HVSFLIF VRFLOP HGD XVH
DOGHP RWRQDOLQHW/HQVQVRFLOP HGD 6LP LDUVRVWV
PRUH VRFLO PHGD XVH HSHFDQ HP RWRQD
LQHW/HQV ZDV QONHG VR KJKHU OMYO RI DQ LHW
GHSDLU DOG OZ VQ HMM-P (YHQ DVUFRQURQDQJ IRU
ZRUJ GHSDLU DOG VQ HMM-P IXUMHUCDDVLV/KRZ HG
VNDVQJ KMP HVSFLIF VRFLOP HGD XVHZ DV/DVJQLIFDQ/
SUHGFRU RI ZRUJ VQHS TXDQW FROQEXWQJ VR
SUREOP VSK VFDQ DOGPHQDQ

\$@RWHYHV FKLQGXUQJ VWHIRXUR\ HURI SUIP DV
VFRROQ&KLD KDYHDQDQDQ RZ QDP RELQSKRQH ,Q
DQONKRRG P DQ VMG-QV P DQD IRFXV RQ VRFLO
PHGDQHZ HFQVDOG4 ZKLFK DUHDSDFDNRQ/VR FKDV
ZLWK HFK RWHULQWMDG RI JDP HV RQ JURXQV/VNDVWH
RZLQJ VWH SKRQH IRU VWHILUWMP H ZLWK FXURQW 7KH
FDQ QRARQD VQD VR VWHU IUHQG/ DOG DN VWHU WDFKHU
VRP HTX-WNRQ/RQ VRFLOP HGD EXVFDQ DOR SRVSKRVR/
DOG YLGRV LQ VWHU PRPHQV DOG UHYZ ZKD/VWHU
IUHQG/ KDYH SRVWG DOG PDNH VRPH FRPHQV
,P SRVQDQ SDNRUP V UFKO JLYH D YDUHW RI RSNRQ/
IRUVRFLOFRQDFW HDEQJ SHRSOH VR FDUHXQD SURP RIM
VHP VQHV VURXJK SXED SURLOV PHDXUH SHU
DFHSDQFH VURXJK VWH DP RXQVRI QNHV DOG PLQPLQJ H
HYHV GD IDFH VR IDFH SHULQMDFRQ/> @8 LQJ VRFLO
PHGD LV DQ HJ WHP HQ JRRG FKLPH IRU VWHV ZKR DUH
QHYRXV VR FRP PXQFDM ZLWK RWHUV IDFH VR IDFH VR
VRP H LQURVHUHG LQGLYGDV RI WQ VSHQ VWHU WPH RQ
VRFLOP HGD QR PDWU GULQJ VWH GD RUQJWV 3RRU
VQHS LV NRZ Q VR FROQEXM VR DQ LHW GH-SUHWLRQ DOG
OZ VQ HMM-P GULQJ DERDVFQH > @&RQHTX-QD
DERDVFQH/ DUH VWH JHGHUDDNRQ ZKR KDYH VWH PRW
VJQLIFDQVWHIFWRI VRFLO PHGD EFDXV VWHU VQ
FRQURQV/CRVEHQJ IXQGHYHSHG PDNQ VHP IDQD
VR P DQJH VWHU WPH H SURSHQ RI VMG-QV XWQJ HG
VRFLOP HGD DSSDFDNRQ/ DFRUGLQJ VR DVMG VILQGLQJ
KRZHYHU MWV RI VMG-QV XVHG VRFLO PHGD IRU
DFQHP LF SXSRVH : KQI RI VHP XVHG VWHV
ZHEVM/VR SDVWVHP HEA EURZ VQJ RI VHP XVHG
VHP VR LQMDVZLVK RWHUV \$ GGLRQDQ RI VHP
UFRVNG KDYLQJ D VRFLOP HGD DGGFRQ> @2 EYRXQ
VHP P DQ DP IRU VHP P DVUW RI VMG-QV LV QRVR XVH
VRFLOP HGD DFQHP LFQD EXWRUWVHURZ Q SXSRVH QNH
FKDQJ DOG EURZ VQJ ZHEVM ' LVQNH DGQV FKLQJH
GRQRVYH VWHDELQV VR ZHJKV VWHILP SRVQDFHRI ZKLFK
VRFQJ JR ILUW VR RI WQ IDQD VR FROQURVHP VQHV
IURP VQDQJ DOG YHZLQJ VRFLO PHGD IUHTX-QD
HSHFDQ GULQJ VWH QJKV DOG VWHU WPH VHP , VLV FQDU
VNDVWH \RXQ JHGHUDDNRQ KDYH D JUHDU SRVLEQW VR
HJ SHUHQFH D GLVWJHG VQHS GULQJ VWH QJKV YLWQD
RI XLQJ VRFLOP HGD EHRUJRLQJ VR EHGIRUDQJ WPH H
IUHTX-QD

1 HU DMVH LP SDFVRI VRFLOP HGD

,VLV XCGHVMQDQDQ VQD/VRFLOP HGD DFVQD SURYLGH
WPH HGRXV FRP PXQFDNRQ DOG RSRUWQVWV EXV
QRZ DQD V D QJH VSHVMP RI SHRSOH VSHQ VWR P XFK
WPH HRQ VRFLOP HGD VQD/VWH HYQJHVMQGLFVWVR EHVW
6RFLO PHGD VQDQJ FDQ QRZ EH UFRJQJ HG DV D
VJQLIFDQV GDQJHU QONHG ZLWK VQDQJ SHURQD
LQ RUP DNRQ DOG XWQJ LQJ VRFLOP HGD GX VR VWH GHVWJH
VR VQDU DOG QDUQ PRUH DERXV RWHUV > @ +HDSV RI
VMG-QV FQQRVMP DQJH VWHU WPH H SURSHQ VR VWH P D
HJ SHUHQFH D GHQDQ LQ VWHU WDFQHP LF SHURUP DQFH DOG
FDQ HDLV JHVMRUVWJWKMG 7KH P D DOR UH XVH VR
PHVSHRSOH IDFH VR IDFH RQ JURXQV/VNDVWH JHVXVHG VR
VWH ZD VWH FRP PXQFDNRQ RQ VRFLO PHGD
&RQHTX-QD LV XVHV FQQRVWQNH VWH DQDQDQJH RI
VRFLOP HGD LQ RLGU VR PDNH JRRG XVH RI LV VRFLO
PHGD FDQEHDKLQGLQDFH LQZ RUD DOG VMG

7KH LP SDFVRI VRFLO PHGD RQ VQHS LQJ
GXUDNRQ DOG TXDQW

7KHU DUH DQJH FRKRUWRI UHVRQ/ZK SHRSOH VSHQ
VR P XFK WPH H XLQJ VRFLOP HGD EXVWHP RWHV SRVQDQ
VZR UHVRQ/DUHFRQJGHUHG DV) RO R DOG &60 8 \$ JUHDV
QXP EHURI SHRSOH XLQJ VRFLOFRVMDQDQ RQ JURXQV/RI
VWH IDU RI PLWQJ RXW) RO R DOG FRP SXOLYH VRFLO
PHGD XVH &60 8 6LQFH VWH FRVMDQVWHUDDNRQ KLS RI
) RO R DOG &60 8 EHZHQ VQHS TXDQW KDYH EHQ
GLVFXWG VWHIRQZLQJ KI SRVWVH/DUHP DGH
+ &60 8 KDV D SRVWYH DVRFLONRQ ZLWK
SUREOP DMV VQHS GHVVR VRFLOP HGD > @
+) RO R VZRZ V D IDYUDEQH FRUHDNRQ ZLWK VQHS
LVXHV EURXJKV RQV VRFLOP HGD > @

IHP DQ VMG-QV IURP 3UQFH 6DMQ ELQ \$ EGXO
\$]LQ 8 QYHUW LQ: DQ \$ GGEZ DMUSDUVSDMG LQ VLV
VMG)URP 6HSMP EHVURXJK' HFP EHURI VLV\ HJ
VWHU WDFKHU LQ VWHU WDFKHU VWHU WDFKHU VWHU WDFKHU
GULQJ D P RQV SHURQ > @7KH VMG-QV ZKR VWR SDUW
LQ VWHU WDFKHU DUH ZLQDQJ VR DQZ HUDO VWHU WDFKHU DOG
FDQ DQZHU DQ VWH TX-WNRQ/ SDMVQD DOG KRQVQ
6RP HTX-WNRQ/ ZHU DNHG LQ \$ EDUF DQXDJH LQ/RI DU
DV/VRP HGRQ (QJQK VSHDNHV FDQ HDLV XCGHVMQDQ VWH
PHQDQJ RI VWH TX-WNRQ DOG JLYH D PRUH UHQDQ DOG
SUDVFDQ UHSRQH \$ QZHV ZKLFK VHP LQDSSURSUDDM
ZRXQ CRVEHQ LQFOXGH IURP VWH VMG \$ JH VWH QXP EHU
RI KRUV VSHQVXUQJ VRFLOP HGD RQ VWH LQMDQVWV
PRVSRXQD VRFLOPHZ RUDQJ VAM VQHS GUDNRQ VWH
XVH RI VRFLOP HGD SDNRUP V IRU DFQHP LF SXSRVH/
FKDQJ JDP LQJ RU ZDQKQJ P RYHV VWH VQVVR
FRQJH VWH HIFWRI VRFLOP HGD XVH RQ UHDDNRQ KLS/
ZLWK IDP LQ DOG IUHQG/ DOG VRFLOP HGD SUHFRFXSDNRQ
DOG GLVDFNRQ IURP RWHU DFVWVWV DUH DQD DFVU/ VQD
DUHP HDXUHG > @

,VWUDMUREYLRXV/VNDVWH IUHTX-QA RI VRFLOP HGD
XVH LQ D ZHN DOG VWH DYH UJH VPH RI VRFLOP HGD XVH
SHUG DUHERV RI KJK VRUHV 3HRSOH XVH VRFLOP HGD
IRUP DQ SURSRVQRVQD DQ GULQJ VWH GD WPH HEXDOR
DQJJKV VR VFK DQ HJ WQVMDQVWV WPH VWH VSHQVQ
VRFLOP HGD LV JURZLQJ LQ FROQD VZLVK VWH SDVWVH
VQDQ

' LI IHUHQ/VLGH/RI SHUF-SWRQ/RI WHIP SDFWRI VRFLDO PHGD XVH RQ E-GMP H DUH DQDQ] HG 7KH UHXOV UHYDO WDV WH SURSRWQ RI VHG-QW KDYLQJ D SRMWH SHUF-SWRQ/RI WHIP SDFWRI VRFLDO PHGD XVH RQ E-GMP H LV KJKHU WQQ WH QHJDYH RQH / \$ V D UHXOV/KDSV RI VHG-QW/VHSLQJ TXDQW KDYHEHQJLQJ QHQFH

7KH ILQGLQJ V LQGLFDM/WDV D QJH FRKRUWRI VHG-QW JR VR E-G DV DQG , DQG PRWWVHG-QW FRRH VR VHS DV \$ QMRXJK DQVRI SHSDI VHS DVU R FQFN WDMHQPEHURI VHG-QWZKR VHS EHRU R FQFNJLQ/DJUHDMUSHUF-QJH

Table 1. The average time of social media use before bedtime and daily and the frequency of social media use in the recent week [6].

Variables	OR,95%CI	(Mean ± SD/%)
The average time of social media use before bedtime		
Less than 0.5 hours	1 (Reference)	657(33.20)
0.5 hours to 1 hour	1.486 (1.198,1.842)*	808(40.83)
1 hour to 2 hours	1.746 (1.322,2.306) *	357(18.04)
More than 2 hours	1.826 (1.244,2.681) *	157 (7.93)
The average time of social media use per day		
Less than 2 hours	1 (Reference)	852 (43.05)
2 hours to 4 hours	1.581(1.2951.932) *	869(43.91)
More than 4 hours	1.749(1.288,2.374) *	258(13.04)
The frequency of social media use in the recent week		
0 day	1 (Reference)	41(2.07)
Almost every day	2.920 (1.553,5.492) *	1354 (68.42)
4 days to 5 days	2.899(1.484,5.664) *	278(14.05)
2 days to 3 days	2.493(1.269,4.898) *	238 (12.03)
1 day	2.279(1.033,5.024) *	68 (3.44)

7KH FRFOXMRQ/ DUH JLYHQ WHRUHFDQ DQG SDFWFDQ \$ P DULUW RI SHSDI HSHFDQ VHG-QW XVH VRFLDO PHGD FRQMP SRUJLQ / DFN RI VXLFLHQWVHS LV WH P DQ SUREOP DFRUGLQJ VR WH QRFWUDD XVH RI VRFLDO PHGD Z KLFK KDV WH SRWELQW VR FROWEXM VR WH DGYHQ/RI VRPH GLVHDV/ 7KHSUHQWVHG VILQGLQJ DERXW DMQJJKW VRFLDO PHGD XVH KDYH LP SRUJLQ LP SDFWRQ/ IRU WH JHQHUV RI GLVGHUV QDNG VR PHHDERQ V QGURPH VLQFH FRURQF VHS UHMHFWRQ FDQ UHXOVURP DMQJJKWVRFLDO PHGD XVH > @7KHUHXOVRI WLV VHG WQV GPRQWDM WDV VRFLDO PHGD XVH SDFWFDQ DP RQJ \ RQJ LQGLYGDQ LV DAVRFDNG ZLVK RQDQ VHD GLVFXUH DQG PRQWUJQ RI RMHV/ SURLOV RQ VRFLDO PHGD > @, QHQFHGE VRFLDO PHGD DUH RQ VHS GUDMRQ EXW DQ VHS TXDQW ZLVK SHSDI DIIHFWGPHQD DQGSK VFDQ

&RQMP SRUJLQ VRFLDO PHGD KDV LQHQHQFH DFDG-P LF SHURUP DQFH WURXJK VHSLOJ DQG WLV SKHQRP HQRQ RI VHSLOJ GLVWUDDQH HSHFDQ RFFXUV DP RQJ KJK VFRROVHG-QW 6VHG-QW VHP VR JHVQZHU VFRUW DV VFRRORQ JURXQJ/ RI QRWHILFLHQWVHS Z KLFK FDXHV WHP IHO H WHP HD H KDXVHG DQG VHS GULQJ GD WPH ,WLV SURRXQD HDX IRU WHP VR IDQDQHS GULQJ WH FQW P LVUJQ VRPH HWHQWQDQRW/DQG WLV ZLQDQD VR WHLUEDG DFDG-P LF SHURUP DQFH UHXOVQJ D QHJDYH F FQ \$ QMRXJK LVLV D JUHWVROXMRQ IRU VHG-QW VR JR VR E-G HDQ DVQJJKW LVLV DFDQ LP SRWELQ E YLUDDRI IHU RI P LVUJQ RAVDQ WH GHULH VR FRP P XQFDM RQ VRFLDO PHGD DQG DQ FRFN VRPH RP HQVSRVNGE RMHV

6XUH GDQ IURP HJKW DQG QQW JUDGHV ZHUH JDWHUHG VR QFN LQW WHUHQMRQ KLSVRYHUMP HEHWHQ ' 660 VFRRO EXURXW DQG DFDG-P LF VFFHW 7KH VPSH LQFOXG P LGQHVFRROVHG-QW RI ZKRP ZHUHPHQ IURP FQWV WKJUDGHV/P DGHXS RI WHVPSH ZKLOLQJW JUDGHV/P DGHXS DV 7 DWHYHQ P LGQHVFRROV LQ WH 7 DSHL DUH RI SHSDI UHSRQGH 7KH VFRROV LQFOXG-GERW SXEQ DQ

,P SDFW RI VRFLDO PHGD RQ DFDGHP LF SHURUP DQFH WURXJK VHSLOJ

SULYDM VP DOD QWJH DGG PHGXP VJHG VKRROV LQ
7DZDQ> @

,I VMH VMG-QW UHXVH VR GR VMH VXYH VMH
H SHUP HQMV Z LQCRV RUH VMH VR DQZ HU DGG FORVH
VMH VXYH IRUP IRU VMH \$ CRQ P RXV GDM FRQFVRQ
Z DV XQG LVONQ VR JXUDQMHUH SRQG-QM FRQ LG-QMDDV
> @

7KH ILQGLQV G-P RQMDM D VJQILFDQWQN EH ZHQ
' 660 FDXHG E VRFDOP HGD DFDG-P LF VFFHW DGG
IDM XH 7KH SDUWVSDQW LQFUHDVH XVH RI VRFDOP HGD
DV D FRSQJ VADWV IRU VMHU EXUCRXVFDQ EH XVHG VR
H SDQJ ZK VMHU LV D UHFLSURFDQGHJ DVMH UHDMRQKLS
EH ZHQ VFKRCEXUCRXVFDQ DFDG-P LF DFKLHY-P HQ/7 KLV
LQFUHDVH XVH RI VRFDOP HGD KDG D QHJDVH LP SDFVRQ
VMH SDUWVSDQW VHS TXDDW DGG TXDDWV ZKLFK KDG D
QHJDVH LP SDFVRQ VMHU DFDG-P LF SHURUP DQFH> @7 KDV
LV VR VD VMH P RUH WHP H VMG-QW VSHG LQ VRFDOP HGD
VMH P RUH WHP VMH Z LQGH SHULQFH ZKLFK P DNH VMH P
GLILFXOV VR FRQF-QMDDM RQ VMHU GDO VFKRRO Z RUN
QDGLQJ VR Z RUIH DFDG-P LF SHURUP DQFHV \$ IXUMHU
FRQVEXMQLQ IDVAVU LV WDV FKLQJHQ XVDDO FDCRV
P DQJH VMHU WHP HSURSHU VR WDV VMH P D VSHG P RUH
WHP H LQ VRFDOP HGD P RUH WDD GRQJ VMHU VFKRROZ RUN
Z LMRXVCRXJK FRQF-QMDDM

' LVFXVMRQ

,WKDV EHQ KRZ Q LQ DSSURJ LP DMD DDUHVDURKV DGG
VXYH V WDV VRFDOP HGD QDYH D GFLVYH LQ QHCFH LQ
VHSLOJ TXDDW DGG GUDMRQ 7KH WHP H WDV VMH G-QW
HSHFDQ VMHQJHV VSHG LQ VRFDOP HGD LV LQFUHDVH
GUP DAFDD G-HVR VMH HURI P LV LQJ RXVP DQD 7KHUH
LV DOR DQ ULQJ WHPG RI SRMQLJ KJKQJ KAP RP HQV RQ
VRFDOP HGD LQ RGHU VR KRZ SRMQLJ DVMXG RI GDO
QH DGG VMHU ZHQURXGGH SHURQDDW 7KLV VHP V
VDDO LUHQDQV VR VHSLOJ GLVMUEDQH EXW LV LV
FRQF-PNG WVRQJ Z LK VHSLOJ SUREOP V +HDSV RI
SHRSH FRRVH VR SRVMHU SKRVR DVQJ KVMCFH VMH
P D KDYH VR VMG DGG Z RUN GULQJ VMH G DGG VMH GR
QRWKDYH HQXJK WHP H VR HQV DGG P RGL VMHU SKRVR
VONQ \$ VD UHXOV VMH V P D Z DVWRUQZ P RP HQVE
YLVNDOR IHUJQJ P LV LQJ RXV VMH V KJKQJ VMH SHULQFH
7KLV DUH VHXG EH GLVFRYHUJG P RUH DFRUGLQJ VR
VHSLOJ GUDMRQ DGG TXDDW 0 RUFYHU VRP H IXUMHU
VMGHV KDYH DDFDQ IRXG RAV WDV VRFDOP HGD GRVROD
LQ QHCFH VMHQJHV EXNDOR HIFW DGXOV DGG RXQJHU
DGXOV KDYH D KJKHU SRMELQW RI EHQJ DIFANG RQ
VHSLOJ TXDDW \$ GXOV IUTX-QW XVH VRFDOP HGD DV
QJ KWP DNQJ VMH VHS RXVFP HV WDV VMH LP SDFANG D
SHULQHQVMH DUK VSE IRU VMH HQVMH QHVP H : KQJ
RQHU VRFDOP HGD XVH VHS P D EH EHQJ LMG E
UHGFFG VRFDO LVRODMRQ \RXQJHU SHURQJ DUH P RUH
VMH SNEOH VR VMH SRU VHS DAFDNG Z LK P LGQJ KVV
VRFDOP HGD XVH &KRL HWDD ' HMLV 0 HKO
> @ RXQJ DGXOV FDQ DOR EHFDDW ILHG DV VMHQJHV
VCFH VMH KDYH VMH VMH LQJ VMH VRFHW DGG VRP H RI
VMH P D EH VMHQDQJ LQ VFKRROSUHSUJQJ IRU VMHU
XQYHVUV HQMDFH H DP LQDMRQ VR VMH VMH KDYH VMH
SUREOP RI VMH VRFDOP HGD ZKLFK FRQVEXMVMH VMHU
SUREOP DMF VHSLOJ 1 RQHVMH LV LV CRVGH LQVMH
WDMHYHV RGH LQFOXGJ VMHQJHV DGG DGXOV Z LQ EH

HIFWNG E VRFDOP HGD RQ VHSLOJ TXDDW 7KH RFFXU
RI VHSLOJ GLVMUEDQH LV P RUH GSHG-QV RQ SHRSHV
VH GLVSDQH ZKLFK P HQJ ZKVMHU RU GRVMH KDYH
VMH DQW VR FRQVROVMH VHMV IURP DGG FANG DGG EHQJ
VR UHQDQ VR VRFDO P HGD HFDQ DVQJ KVV 6RFDQ
P HGD XVHEH RUHQJ KWP RQ KH DDM \RXQJ LGQYLGXOV
KDV GR G-HVP HQMDFRQ HTX-QFHV RQ VHS RUHP RMRQDQ
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6RFDOP HGD KDV QH WDD LQ QH-QMDDH HFWRQ UHMG-QW
HSHFDQ VMG-QW DVMKRRQDJH EXNDOR \RXQJ DGXOV
, Q D FRP SDFW VRFHW DV D KJK SDFH DGG UDSLG
G-HVOSP HQVQR RGH FDQ QYH LVRODMQ 3HRSH KDYH VR
Z RUN VRUVMHU DGG VMG VRUVMHU VR LQFUHDVH Z RUNQJ
DGG QDGLQJ HILHCF DGG VRFDOP HGD LV D JUHQDQJ HCF
UHQDNG 1 HYVMH VMH VMG-QW Z KR KDYH QZ VH FRQVRO
XVH VRFDOP HGD VR IUTX-QW DGG HYG CRVMUEDQ
ZKLFK KDYH DDFDQ GLVMUEH VMHU VHSLOJ GUDMRQ DGG
VHSLOJ TXDDW 7KH IHURI P LV LQJ RXV DQGLQJ VMH VR
VDA XS DMVR FKFN ZKDVMH LV P D WDLQJ DERXV DGG
SRMQLJ ZKDANCG RI QZ P RP HQV 7KH IUTX-QF RI
XV LQJ VRFDOP HGD LV JURZ LQJ GUP DAFDD DFRUGLQJ VR
P DQ VMGHV 6RFDOP HGD KDV DDFDQ QHWD GHS
LQ QHCFH LQ D QWJH VSHWXP RI GP HQV RQ VFK DV VMH
QMV VHSLOJ WHP H DGG D QZ HUTXDDW RI VHSLOJ , WLV
DOR Z RUMQ LQ WDV VMH HIFWVR VRFDOP HGD RQ
VHSLOJ GUDMRQ DGG TXDDW DSHDUV VR EH DQJ WHP H
HIFWVZ KLFK LV GRVHX VR UFRYHUJ LQ D V RUVSHURG RI
WHP H 6RPH RVMH VRFDOP HGD LV HMG-QW DEVROVM D
JUHQDVMH XOVROEULQJ LQ SHRSH D GRVRI FRQVGHCFH
EXVSHRSH VFKRQ P DNH JRRG XVH RI LV2 VMHZ LVH LV P D
LQ QHCFH SHRSH P H D DGG SK VFDQ (YHU RGH
VFKRQ P DNH JRRG XVH RI VRFDOP HGD LQ RGHU VR SUHYHQV
LV WURP LQ QHCFH VHSLOJ DGG QHVMH

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